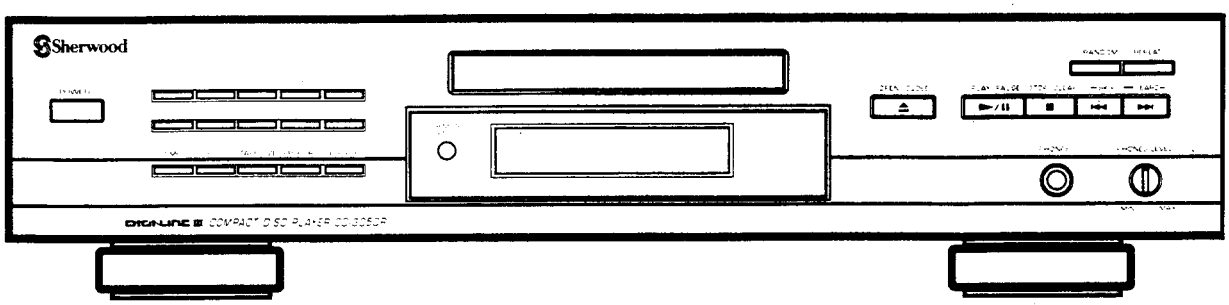
SERVICE MANUAL

CD-3050R
COMPACT DISC PLAYER



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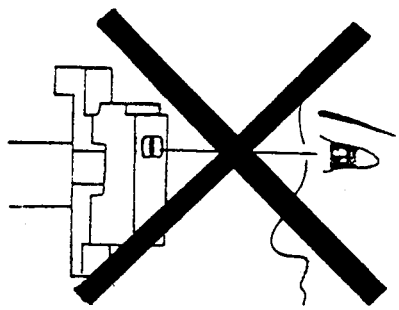
Sherwood

LASER BEAM SAFETY PRECAUTIONS

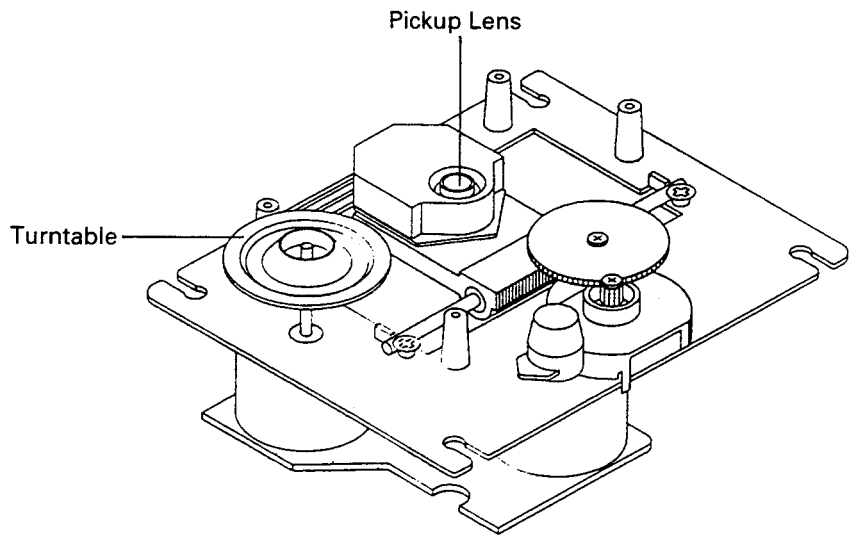
CLASS 1 LASER PRODUCT

DANGER:
INVISIBLE LASER RADIATION.
AVOID DIRECT EXPOSURE TO BEAM.

Do not look directly at the laser beam coming from the pickup or allow it to strike against your skin.



This compact disc player uses a pickup that emits a laser beam. The laser beam is emitted from the Location shown in the figure. When checking the laser diode, be sure to keep your eyes at least 1 foot away from the pickup lens when the diode is turned on. Do not look directly at the laser beam



CAUTION:
Using controls and adjustment, or doing procedures other than those specified herein, may result in hazerdous radiation exposure.

HANDLING LASER PICKUP

The laser diode in the optical system of this player can be damaged by electrostatic discharge from your clothes or your body. Proper electrostatic grounding for service personal is required during servicing.

BEFORE REPAIRING THE COMPACT DISC PLAYER

Preparation

- Human Body Grounding:
  Many of the components used in this compact disc player, including the laser pickup, are sensitive to electrostatic discharge. Service personal should be grounded with an electrostatic armband(1 Mohm).

- Caution:
  Static charge on clothing does not escape through a body grounding wrist band.
  Be careful not to contact the pickup or electrical components with your clothing.

- Workbench and Tool Grounding:
  A properly-grounded electroconductive plate (1 Mohm) or metal sheet should be fitted to the workbench surface. Tools and instruments (such as soldering irons and scopes) should be grounded to prevent AC leakage.

Incorrect

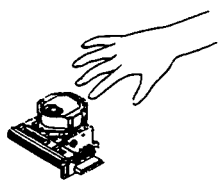


Figure 1

Correct

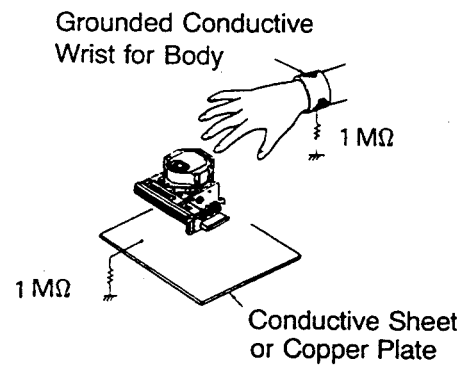


Figure 2

Note: Laser diodes are so susceptible to damage from static electricity that, even if a static discharge does not ruin a diode, it can shorten its life or cause it to work improperly.

SAFETY PRECAUTIONS

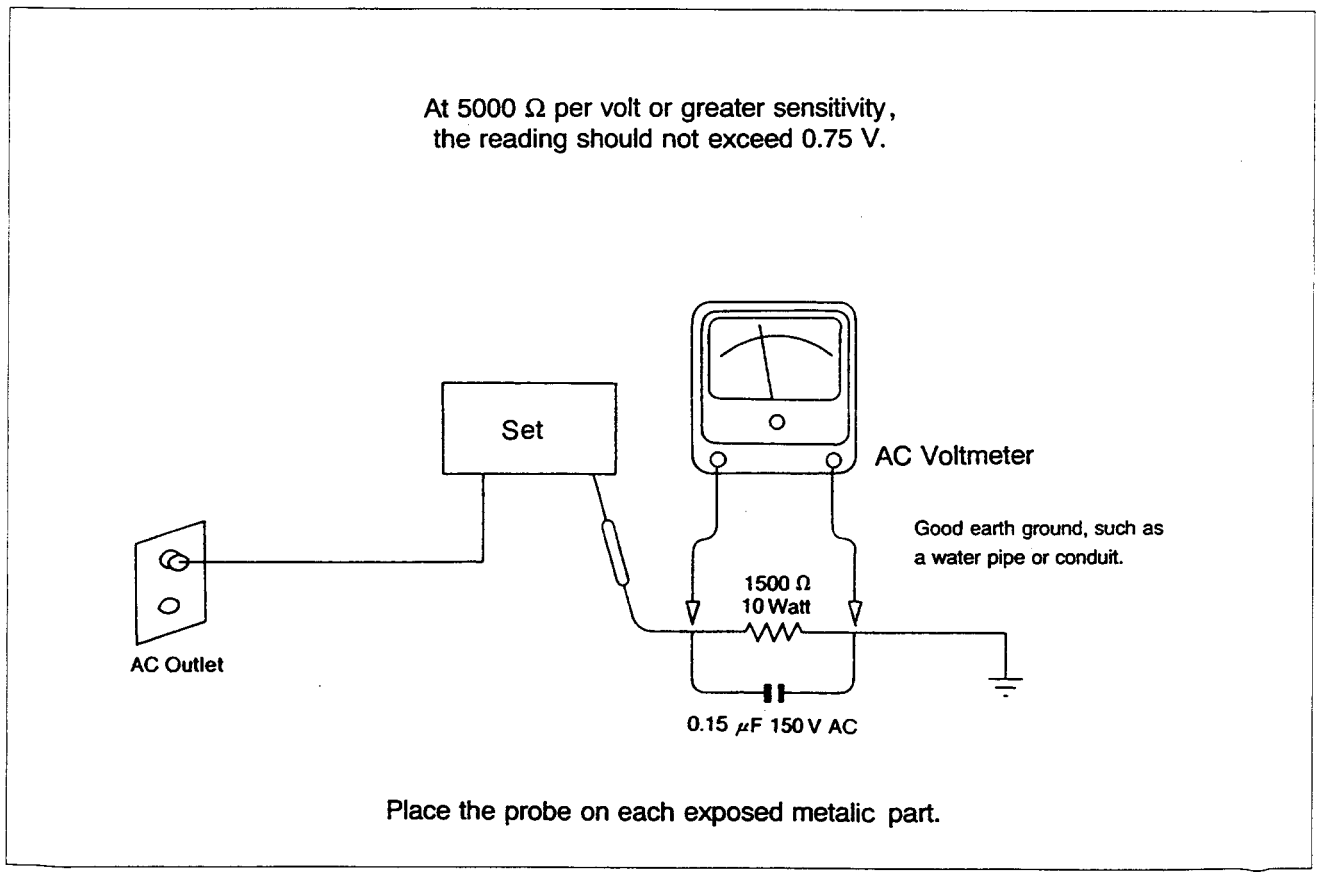
WARNING

Before servicing this unit, familiarize yourself with the following precautions:

1. Many electrical and mechanical parts in this chassis have special safety characteristics that often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltge, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements: electrical components having such features are identified by ⚠ in the schematic diagram and the parts list.

   Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

2. Before returning the set to the customer, always do an AC leakage current check on the exposed metal parts of the cabinet, such as terminals, screw heads, and metal overlays, to be sure the set is safe to operate danger of electrical shock. Plug the AC line cord directly into a 120 V AC outlet (120 V AC version only). (Do not use a line isolation transformer during this check.) Be sure your AC voltmeter has a sensitivity of 5000 Ω per volt or greater. Then connect a 1500 Ω 10 watt resistor, paralleled by a 0.15 μF 150 V AC capacitor, between a known good earth ground (such as a water pipe, or conduit) and the exposed metalic is parts, one at a time. Measure the AC voltage across the combination of a 1500 Ω resistor and a 0.15 μF capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metalic part. Voltage measured must not exceed 0.75V RMS. This corresponds to 0.2 mA AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.


At 5000 Ω per volt or greater sensitivity,
the reading should not exceed 0.75 V.
Set
AC Voltmeter
Good earth ground, such as
a water pipe or conduit.
1500 Ω
10 Watt
AC Outlet
0.15 μF 150 V AC
Place the probe on each exposed metalic part.

SPECIFICATIONS

General

Transmission bit ratio ..... 4.3218 Mbit/Sec
Transmission on clock ..... 16.9344 MHz
Error correction ..... CIRC C1: Double correction

Pickup

System ..... Object lens drive type optical pickup
Object lens drive system ..... 2 Dimensional parallel drive type
Optical source ..... Semiconductor AlGaAs
Wave length ..... 760-800 nm
Tracking system ..... 3 Beam tracking servo type

Others

D/A Converter ..... 1 bit (Bitstream Conversion)
Power supply voltage ..... See type plate at the rear of the unit.

ELECTRICAL

*** Preparations**

- Measuring methods in confirmity with EIAJ CP-307, CCIR 468-3.
- Reference level : 0 dB
- Test disc : Sony CD-3 YEDS-7, Philips 5A
- Filter : 30 kHz, 18 dB/oct low pass filter.

Description		Signal	Disc/Track	Unit	Normal	Limit
Frequency response		20-2000 Hz	2-13	dB	$\pm$0.5	$\pm$1.0
Signal to noise ratio(Weighted A)		1 kHz	23	dB	> 100	> 95
Dynamic range(Weighted A)		1 kHz, -60 dB	20	dB	> 95	> 92
Distortion at 0 dB		100 kHz	4	%	$\leq$0.05	$\leq$0.07
		1kHz	7	%	$\leq$0.05	$\leq$0.07
		20 kHz	13	%	$\leq$0.05	$\leq$0.07
Channal seperation(selective)		1 kHz	30, 34	dB	$\geq$90	$\geq$88
Channal unbalance		1 kHz	7	dB	$\pm$0.5	$\pm$1
Output voltage/Impedance		1 kHz	7	V/k	1.6$\pm$0.2	1.6$\pm$0.4
Access time	Track to next track			sec	1	
Disc defects	Black dot		10-15	uM	$\leq$800	$\leq$800
	Interrupt		3-9	uM	$\leq$900	$\leq$900
	Fingerprint		17-19	uM	ALL	ALL
Emphasis	-0.37	1 kHz	39	dB	0.37$\pm$0.1	$\pm$0.3
	-4.53	5 kHz	40	dB	-4.53$\pm$0.2	$\pm$0.5
	-9.04	16 kHz	41	dB	-9.04$\pm$0.4	$\pm$1.0

Power consumption ..... 10 W(approx.)
Dimensions ..... (H)95 x (W)440 x (D)245 mm
(H)3 3/4 x (W)17 5/16 x (D)9 5/8 inches
Weight(Net) ..... 4 kg (8.82 lbs)

Environmental

Test to specification
Temperature between 59°F(15°C) and 95°F(35°C) and relative humidity between 45% and 75%, with power supply voltage of ± 10% the normal supply voltage.

Operation
Unit must work properly and correctly at the temperature range from 32°F(0°C) to 113°F(45°C) and the relative humidity from 40% to 80%, and with the supply voltage.

Storage
Temperature test 48 hours each at -40°F(-40°C) and 149°F(65°C) .
Humidity test: 40°C 95% relative humidity.

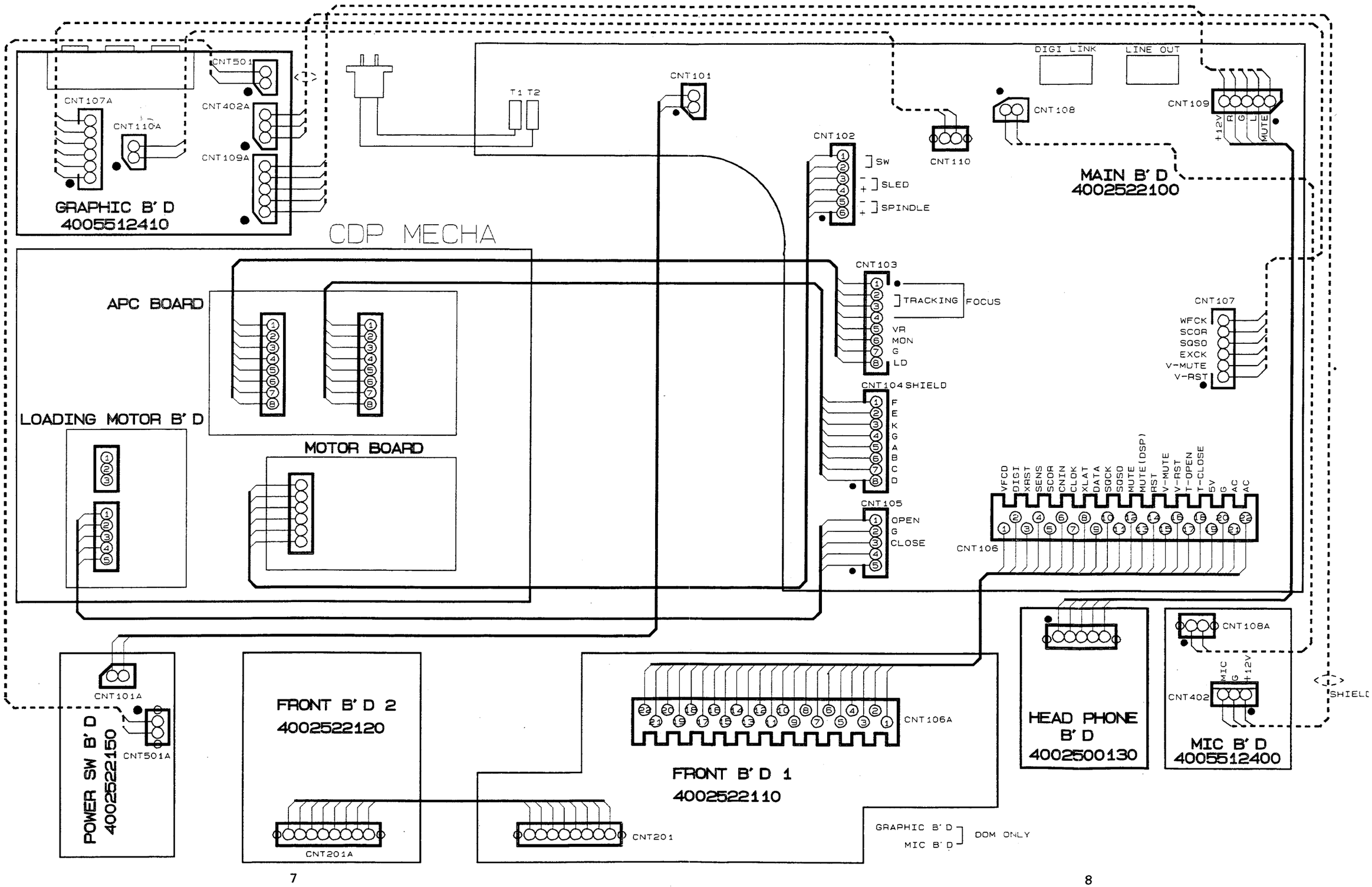
Power Requirment

A:120 V, 60 Hz for American / Canadian Version
B: 120/220 V, 60/50 Hz for multi-voltage version (switchable)
D: 230 V, 50 Hz German / General European version
E:240 V, 50 Hz for UK/Austalian version
G:220 V, 50 Hz for Other Area

Note: Component and circuit are subject to modification to insure best operation under differing local conditions.
This manual is based on the European (D) standard and provides information on regional circuit modification through use of alternate schematic diagram or wiring diagram, and information on regional component though use of parts list.
Design and specifications subject to change without notice for improvement.

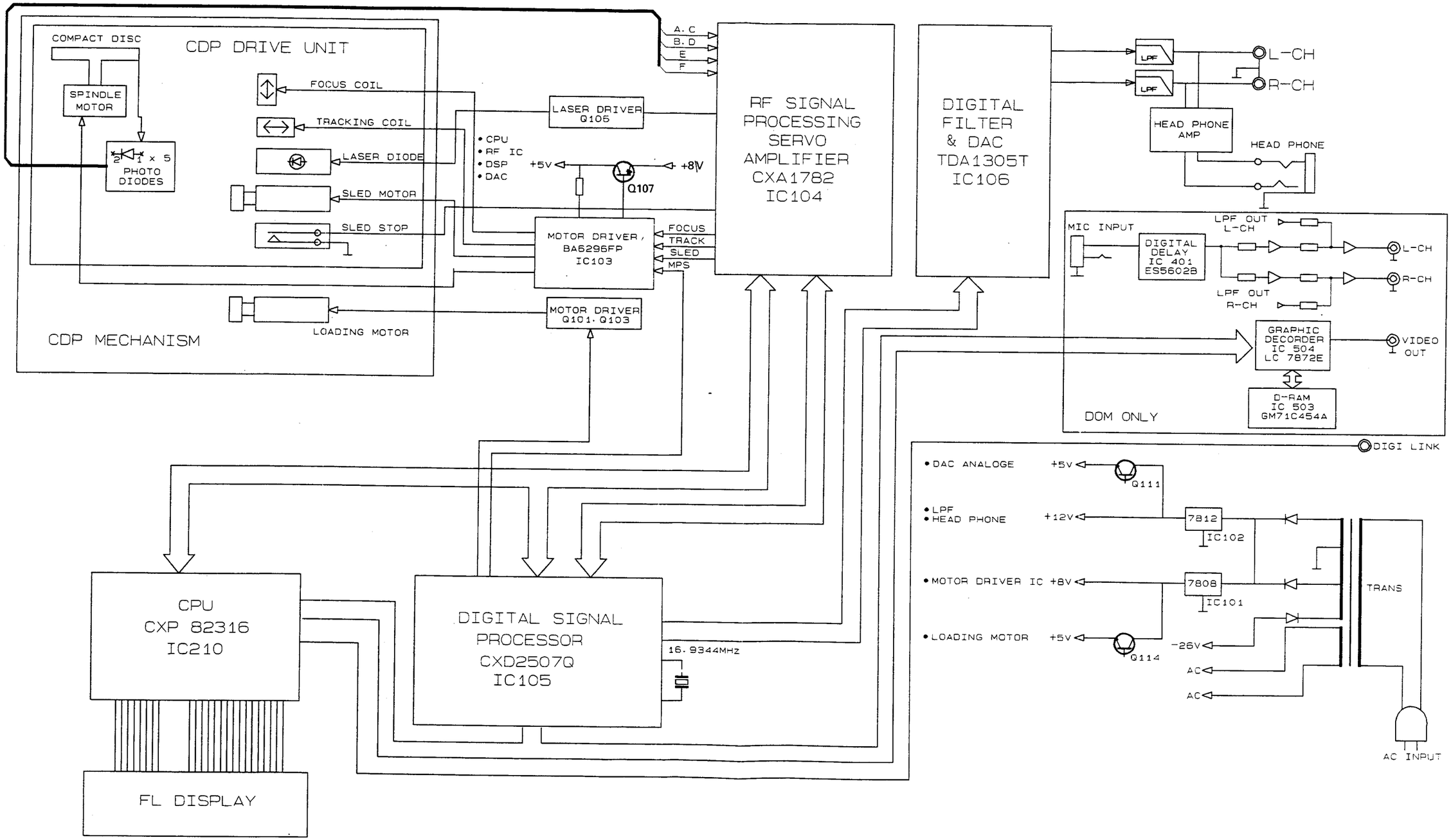
WIRING DIAGRAM

Model No. : CD3050R



BLOCK DIAGRAM

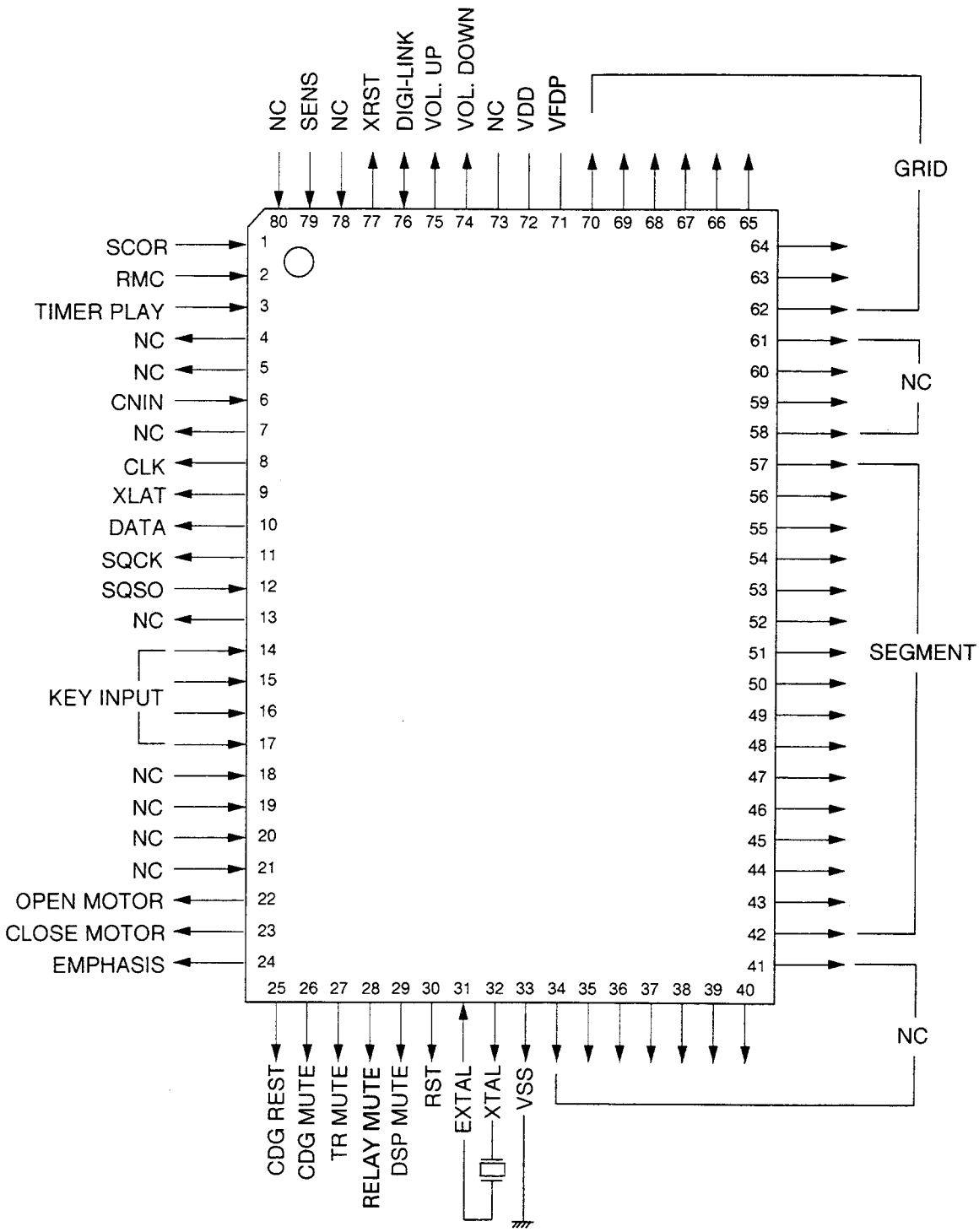
Model No. : CD3050R



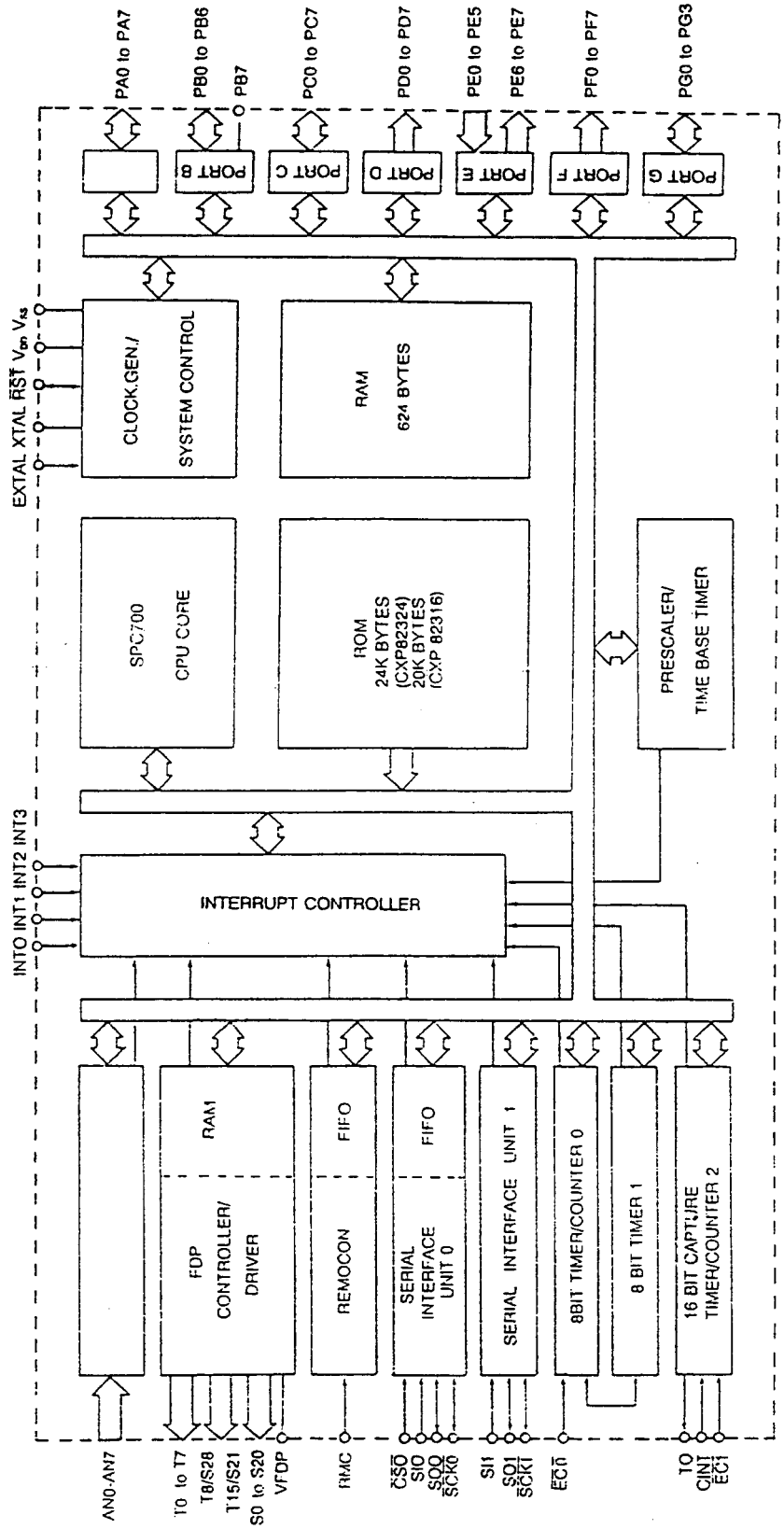
CIRCUIT DESCRIPTION

IC201 : CXP82320-308Q(CMOS 8bit 1-chip Microcomputer)

1. Pin Connection Diagram



2. Block Diagram



3. Pin Function

Pin No.	Symbol	Description
1	SCOR	Subcode-Q readout timing signal input from CXD2507.
2	RMC	Input for remocon data.(At "L", it is active.)
3	TIMER PLAY	Not used! (It sould be connected to VDD.)
4/5	NC	Not used! (They should be left open.)
6	CNIN	Signal input for automatic tracking adjustment from CXD2507.
7	NC	Not used! (It should be left open.)
8	CLK	Serial clock data output to CXD2507.
9	XLAT	Serial latch data output to CXD2507.
10	DATA	Serial data output to CXD2507.
11	SQCK	Clock data output for subcode-Q readout to CXD2507.
12	SQSO	subcode-Q data input from CXD2507.
13	NC	Not used! (It should be left open.)
14-17	KEY INPUT	Data input for key scan.
18-21	NC	Not used! (It should be connected to VDD.)
22	OPEN MOTOR	Output for driving motor to open the tray.(At "H", it is active.)
23	CLOSE MOTOR	Output for driving motor to close the tray.(At "H", it is active.)
24	EMPHASIS	Not used! (It should be left open.)
25	CDG RESET	Output for CD-Graphic reset.(At "L", it is active.)
26	CDG MUTE	Output for CD-Graphic mute.(At "H", it is active.)
27	TR.MUTE	Output for audio mute.(At "H", it is active.)
28	RELAY MUTE	Not used! (It should be left open.)
29	DSP MUTE	Output for muting CXD2507.(At "H", it is active.)
30	RST	Input for resetting CPU.(At "L", it is active.)
31	EXTAL	Input of 10 MHz oscillator crystal.
32	XTAL	Output of 10 MHz oscillator crystal.
33	VSS	Ground.
34-41	NC	Not used! (It should be left open.)
42-47	SEGMENT	Segment signal output of S1-S6 and data output for key scan.
48-57	SEGMENT	Segment signal output of S7-S16.
58-62	NC	Not used! (It should be left open.)
63-70	GRID	Grid signal output of 8G-1G.
71	VFDP	-30 V power supply for FL controller.
72	VDP	+5 V power supply for CPU.
73	NC	Not used! (It should be connected to VDD.)
74	VOL.DOWN	Not used! (It should be left open.)
75	VOL.UP	Not used! (It should be left open.)
76	DIGI LINK	Input/Output for controlling DIGI LINK.
77	XRST	Output for resetting CXD2507.(At "L", it is active.)
78	NC	Not used! (It should be connected to VDD.)
79	SENS	Sens signal input from CXD2507.
80	NC	Not used! (It should be connected to VDD.)

PICKUP REPLACEMENT

Caution:
Laser diodes are extremely susceptible to damage from static electricity. Even if a static discharge does not ruin the diode, it can shorten its life or cause it to work improperly. When replacing the pickup take appropriate measures, such as using a conductive mat and a grounded soldering iron to protect the laser diode from static damage.

1. Remove the CD mechanism assembly by refering to the "Disassembly Instructions" (See Figure 3).

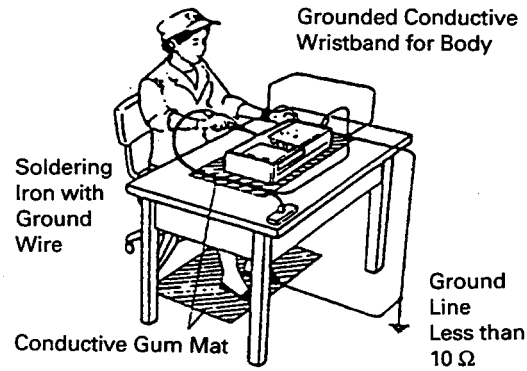


Figure 3

2. Remove 3 screws (See Figure 4).

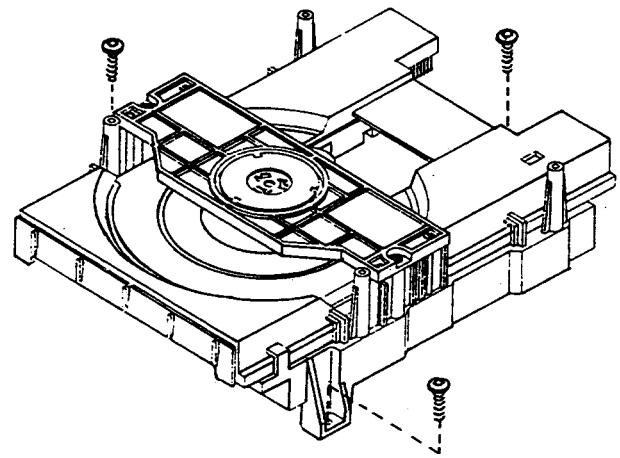


Figure 4

3. Remove 1 screws (See Figure 5).

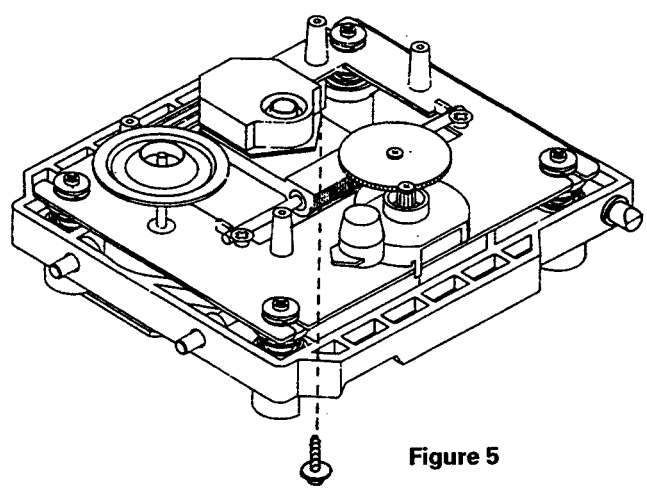


Figure 5

4. Remove 4 screws (See Figure 6).

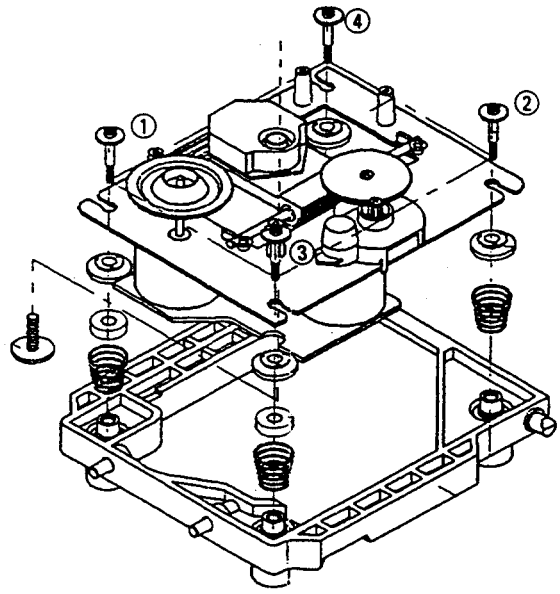


Figure 6

5. Remove the Gear A (See Figure 7).
6. Pull out the slide Shaft.

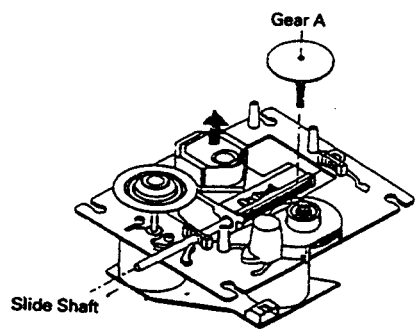


Figure 7

5. Remove the pickup (See Figure 8).

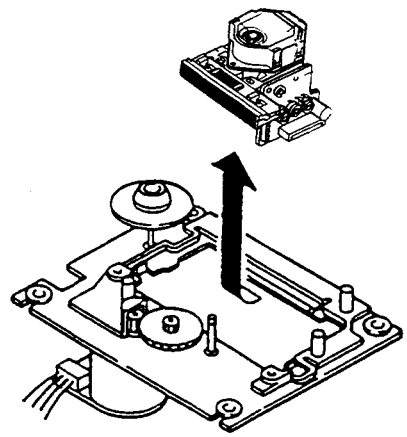


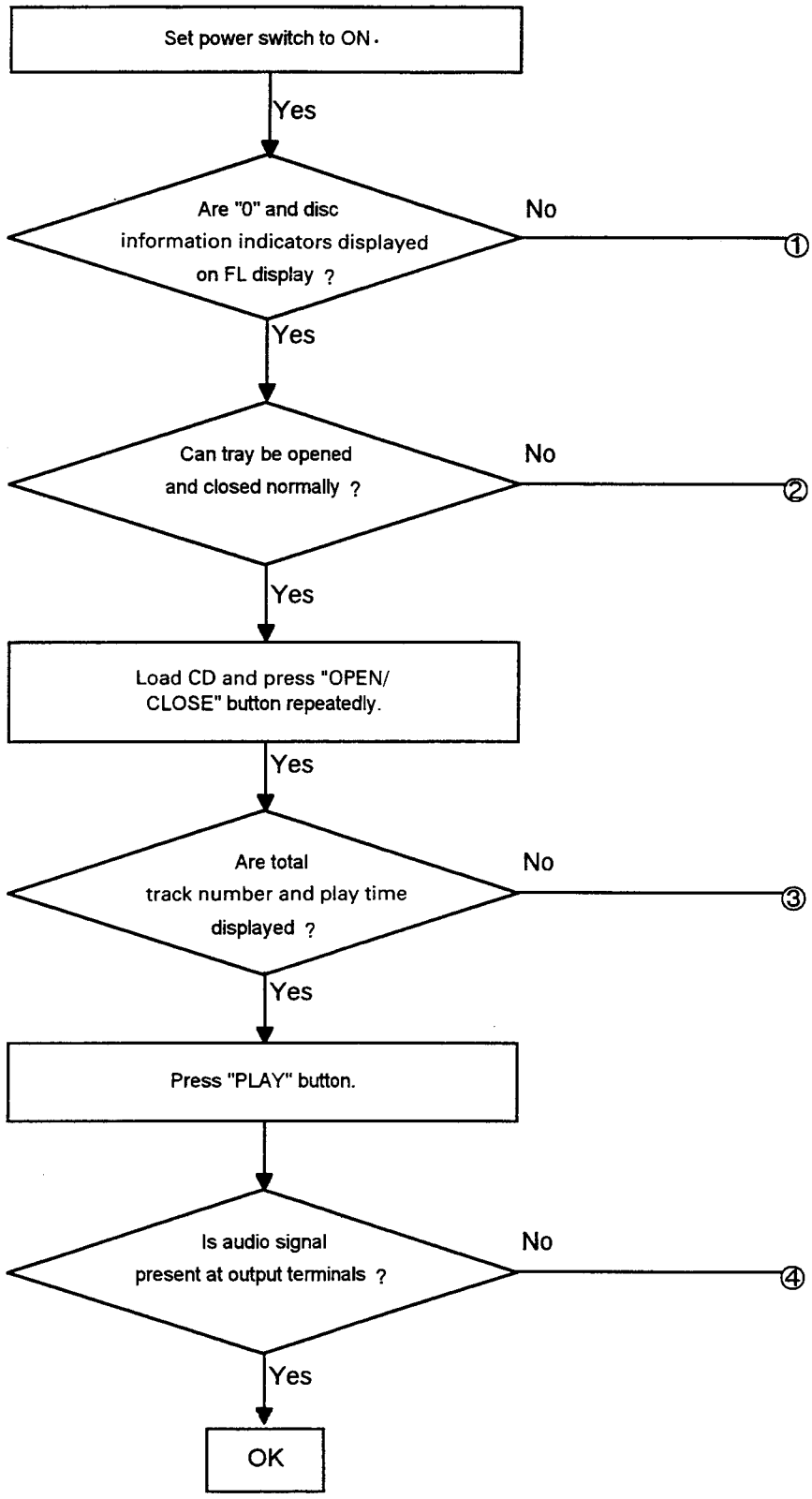
Figure 8

6. Refer to the exploded view of the compact disc mechanism on page 29 for detailed illustrations.

OPERATION CHECK

When the power switch is turned on after the chucking arm is removed, observe the objective lens and chuck the following. (The optical system block should be at the lead-in position when it is checked.)
1. The disc table should be at the innermost position after the chucking arm is removed.
2. The diffused light of the laser beam can be seen when the power switch is turned on.
3. Vertical (up and down) movement of the objective lens takes place 2 or 3 times.

TROUBLESHOOTING



[Repair item1] At power on, " 8 " and some parts are not displayed.

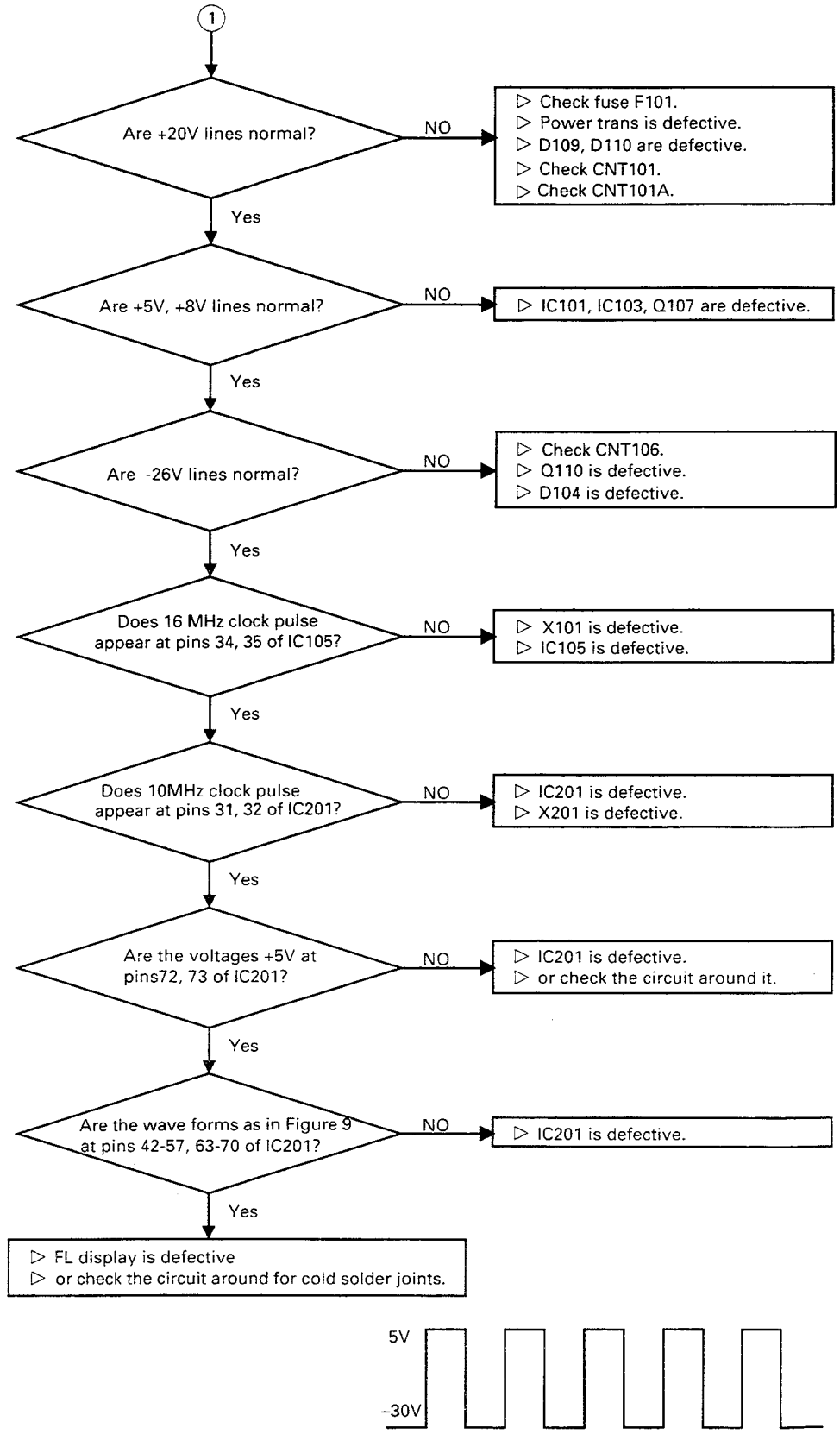
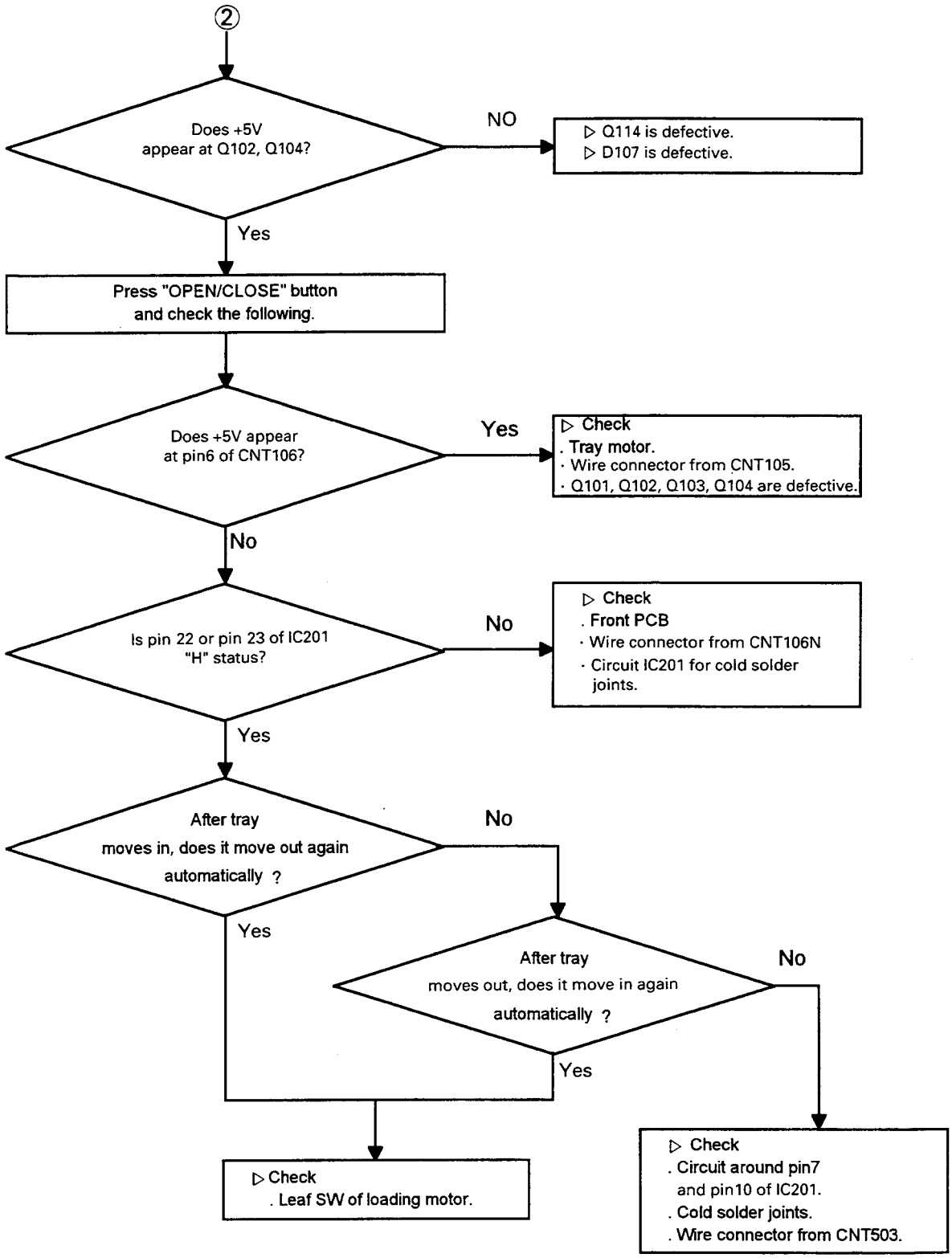
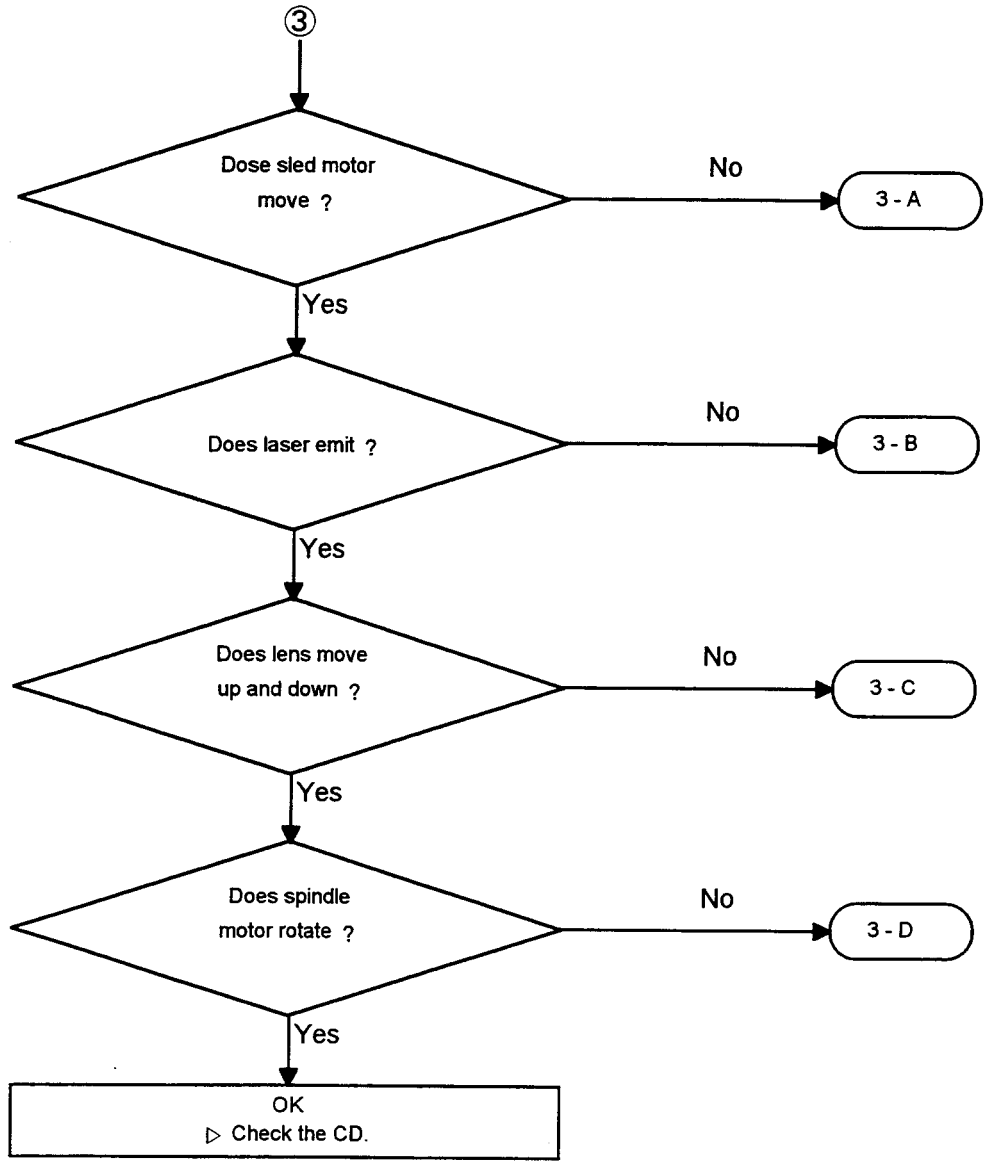


Figure 9

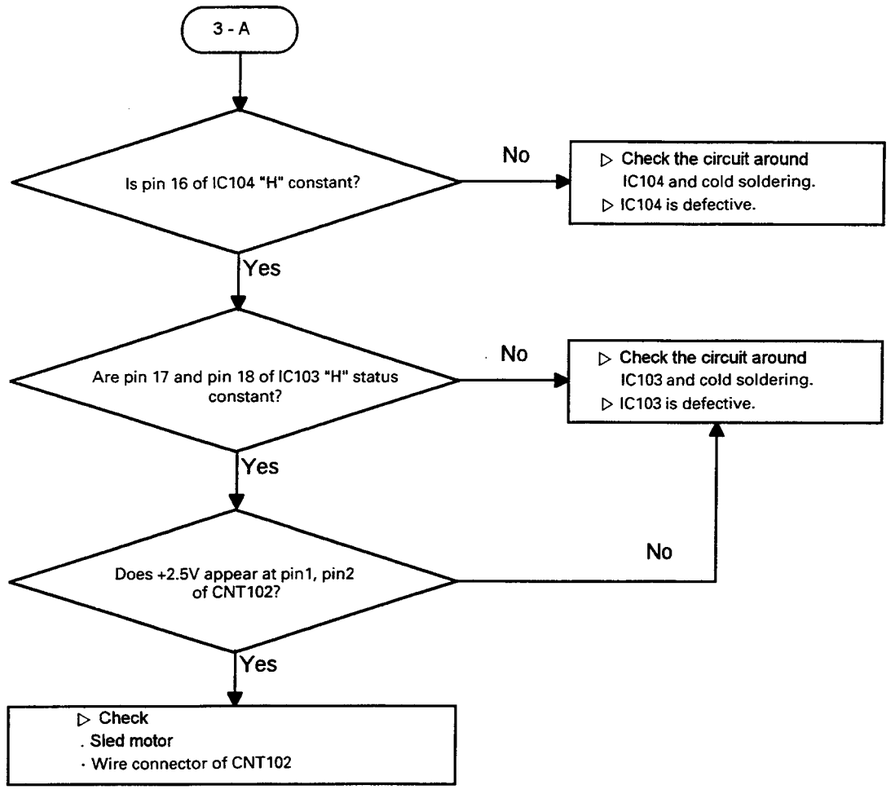
[Repair item 2] Tray cannot opened and closed by pressing "OPEN/CLOSE" button.


②
Does +5V appear at Q102, Q104?
NO
▷ Q114 is defective.
▷ D107 is defective.
Yes
Press "OPEN/CLOSE" button and check the following.
Does +5V appear at pin6 of CNT106?
Yes
▷ Check
. Tray motor.
· Wire connector from CNT105.
· Q101, Q102, Q103, Q104 are defective.
No
Is pin 22 or pin 23 of IC201 "H" status?
No
▷ Check
. Front PCB
· Wire connector from CNT106N
· Circuit IC201 for cold solder joints.
Yes
After tray moves in, does it move out again automatically ?
No
Yes
After tray moves out, does it move in again automatically ?
No
Yes
▷ Check
. Leaf SW of loading motor.
▷ Check
. Circuit around pin7 and pin10 of IC201.
. Cold solder joints.
. Wire connector from CNT503.

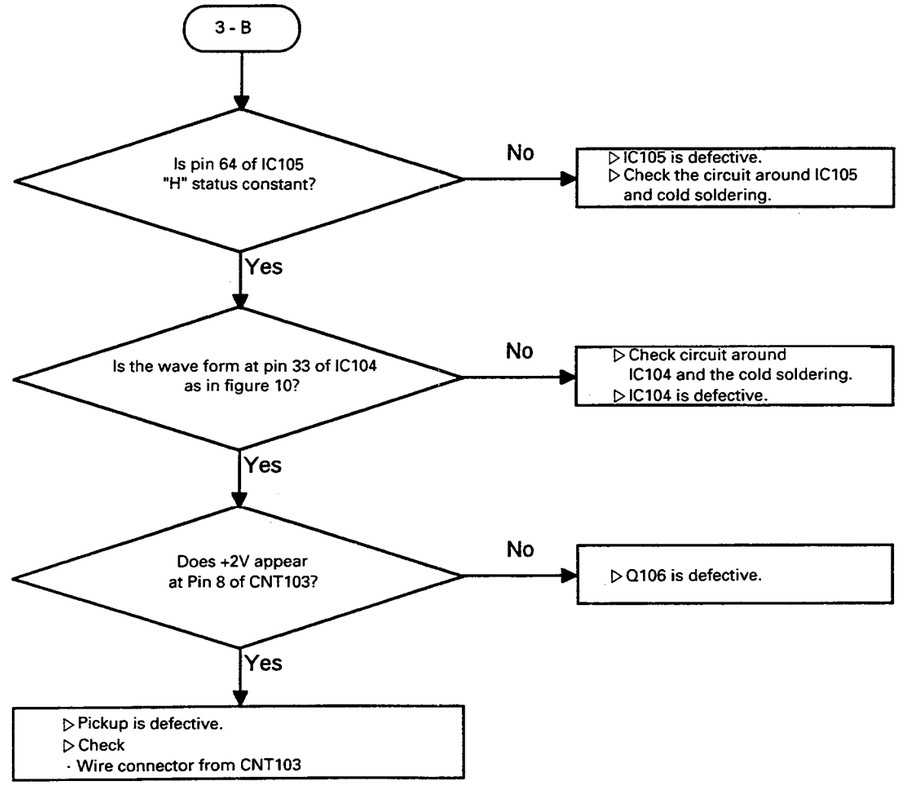
[Repair item 3] "[8]" is displayed instead of total playing time and track number.



[Repair item 3-A] Sled motor does not move.


3 - A
Is pin 16 of IC104 "H" constant?
No
▷ Check the circuit around IC104 and cold soldering.
▷ IC104 is defective.
Yes
Are pin 17 and pin 18 of IC103 "H" status constant?
No
▷ Check the circuit around IC103 and cold soldering.
▷ IC103 is defective.
Yes
Does +2.5V appear at pin1, pin2 of CNT102?
No
Yes
▷ Check
. Sled motor
· Wire connector of CNT102

[Repair item 3-B] Laser does not emit.


3 - B
Is pin 64 of IC105 "H" status constant?
No
▷ IC105 is defective.
▷ Check the circuit around IC105 and cold soldering.
Yes
Is the wave form at pin 33 of IC104 as in figure 10?
No
▷ Check circuit around IC104 and the cold soldering.
▷ IC104 is defective.
Yes
Does +2V appear at Pin 8 of CNT103?
No
▷ Q106 is defective.
Yes
▷ Pickup is defective.
▷ Check
· Wire connector from CNT103

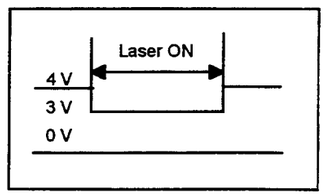
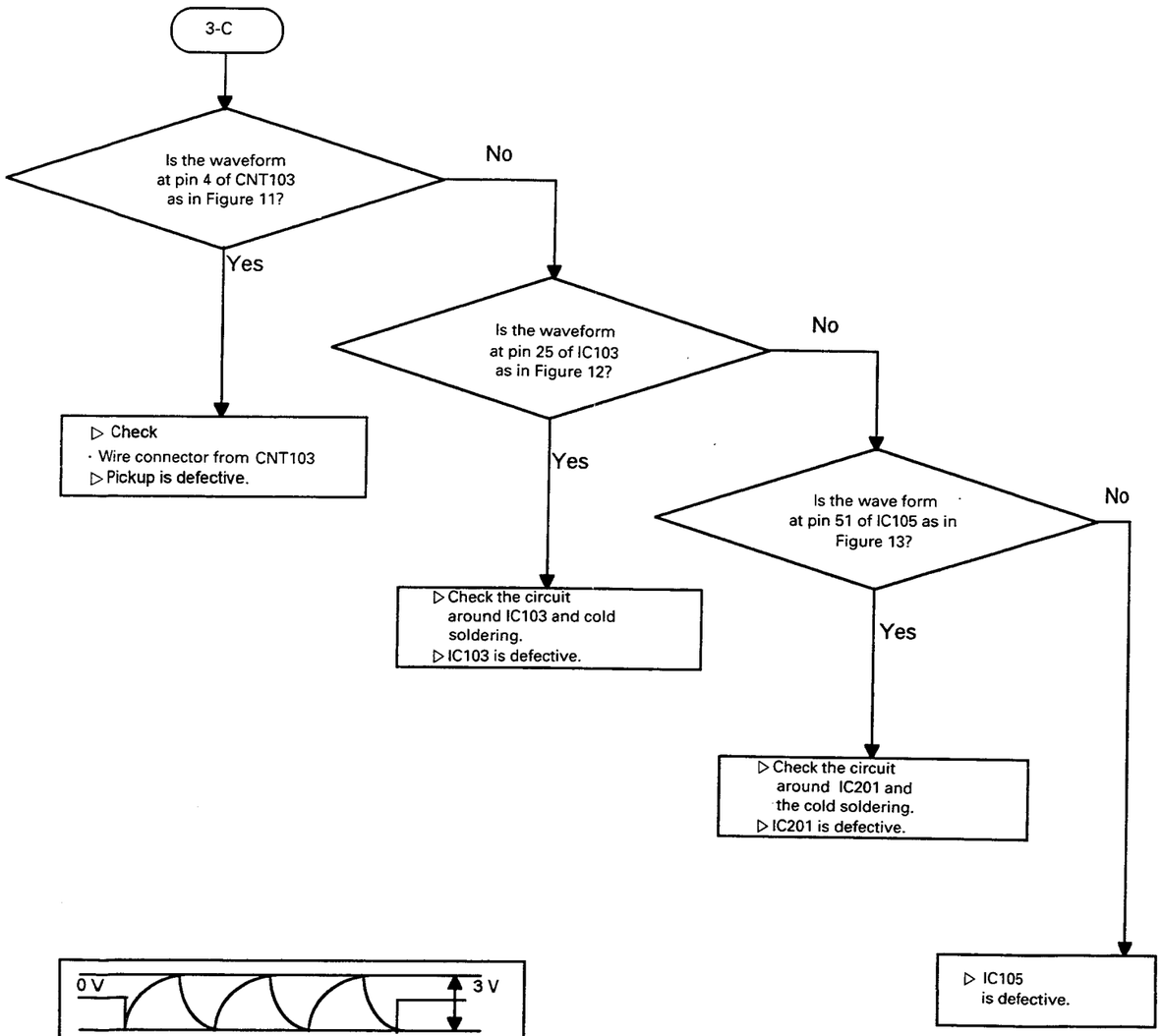


Figure 10

[Repair item 3-C] Object lens of pickup unit does not move up and down.


3-C
Is the waveform at pin 4 of CNT103 as in Figure 11?
No
Yes
▷ Check
· Wire connector from CNT103
▷ Pickup is defective.
Is the waveform at pin 25 of IC103 as in Figure 12?
No
Yes
▷ Check the circuit around IC103 and cold soldering.
▷ IC103 is defective.
Is the wave form at pin 51 of IC105 as in Figure 13?
No
Yes
▷ Check the circuit around IC201 and the cold soldering.
▷ IC201 is defective.
▷ IC105 is defective.

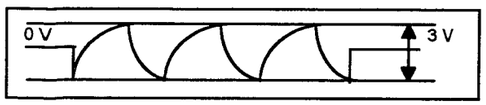


Figure 11

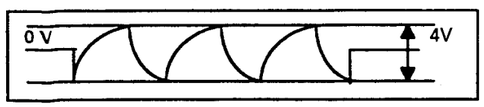


Figure 12

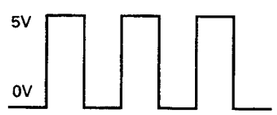
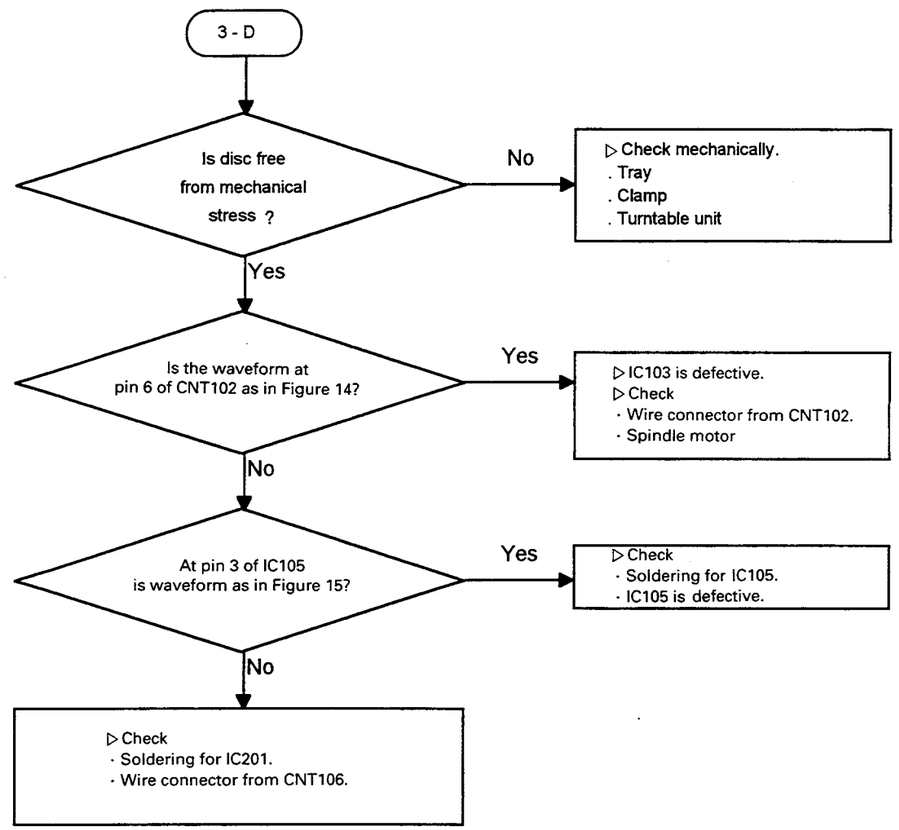


Figure 13

[Repair item 3-D] Spindle motor does not rotate.



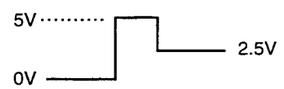


Figure 14

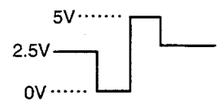
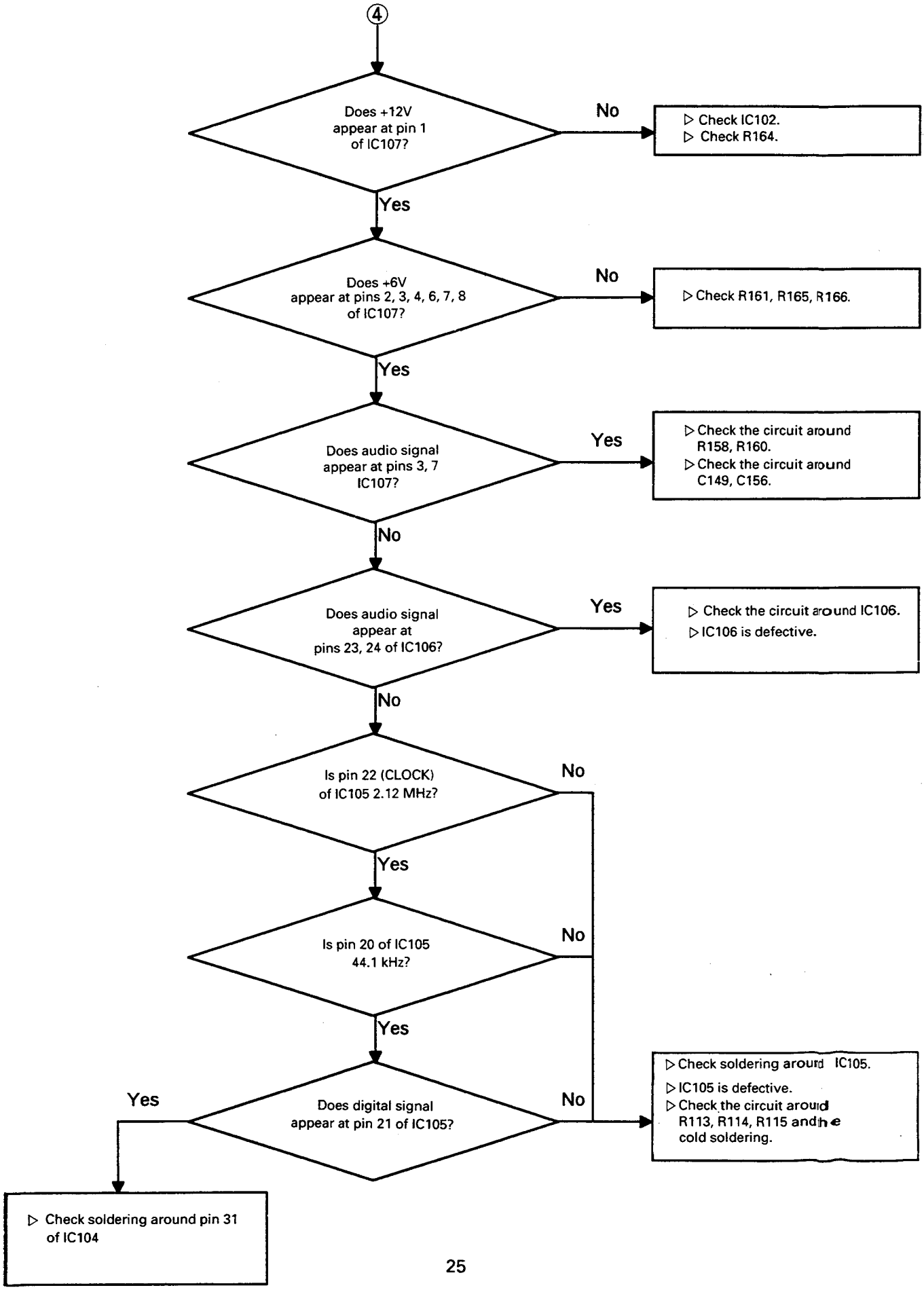


Figure 15

[Repair item 4] No sound signal.


④
Does +12V appear at pin 1 of IC107?
No
▷ Check IC102.
▷ Check R164.
Yes
Does +6V appear at pins 2, 3, 4, 6, 7, 8 of IC107?
No
▷ Check R161, R165, R166.
Yes
Does audio signal appear at pins 3, 7 IC107?
Yes
▷ Check the circuit around R158, R160.
▷ Check the circuit around C149, C156.
No
Does audio signal appear at pins 23, 24 of IC106?
Yes
▷ Check the circuit around IC106.
▷ IC106 is defective.
No
Is pin 22 (CLOCK) of IC105 2.12 MHz?
No
Yes
Is pin 20 of IC105 44.1 kHz?
No
Yes
Does digital signal appear at pin 21 of IC105?
No
▷ Check soldering around IC105.
▷ IC105 is defective.
▷ Check the circuit around R113, R114, R115 and the cold soldering.
Yes
▷ Check soldering around pin 31 of IC104

MECHANICAL PARTS LIST

Ref.No.	Description	Part No.	Q'ty	Version
	Packaging Materials			
	Box Carton	049605172122	1	KS
	Box Carton	049605172121	1	A, D, PT INDO.
	Cushion Poly	9722027310	1	
	Film Soft	9715000120	1	
	Poly Bag	9705001550	1	
	Accessories			
	Cord RCA, 2P	4328200510	1	
	Cord RCA, 1P	4328201910	1	KS(Only)
	Ass'y Commander	5408000612	1	KS
	Ass'y Commander	5408000611	1	A, D, PT INDO.
	Manual Instructions	9007018142	1	KS
	Manual Instructions	9007018140	1	A
	Manual Instructions	9007018143	1	D
	Manual Instructions	9007018141	1	PT INDO.
	Cabinet & Chassis			
1	Panel Front,ABS,Black	048501034911	1	KS
	Panel Front,ABS,Black	048501034912	1	
2	Door CD,ABS,Black	048562005712	1	
3	Window FL,Acryl,Wine	048552004711	1	KS
	Window FL,Acryl,Wine	048552004712	1	
4	Knob,Balance,ABS,Black	048545118011	1	
5	Badge,INKEL	048535038511	1	KS
	Badge,Sherwood	048535042011	1	
6	Button,Power	8545126010	1	
7	Button Tact,10key,ABS,Black	8543064810	1	
8	Button Tact, 5key,ABS,Black	8543064610	1	
9	Button Tact, 7key,ABS,Black	048543064711	1	KS
	Button Tact, 7key,ABS,Black	048543064712	1	
10	Bracket,Phone,SECC,1t	6505139510	1	
11	Jack Phone,Gold	4438005610	1	
12	Chassis Main,SECC,0.8t	6121609420	1	
13	Foot,Gold	046033102621	2	KS
	Foot,Hot-stamp	046033102531	2	
14	Foot,Black	6033102510	2	
15	Foot,Gold	046033102621	2	KS
	Foot,Hot-stamp	046033102531	2	
16	Foot,Black	6033102510	2	
17	Fastener	6028301710	1	
18	Heat Sink REG. TR.	7505206220	1	
19	Jack,RCA,DIGI-LINK	4438105020	1	
20	Jack,RCA,2P	4438111310	1	A,D,PT INDO.
21	Jack,RCA,3P	4438110710	1	KS(Only)
22	Heat Sink REG. TR.	7505202410	1	KS(Only)
23	Selector,Vortage	4618006610	1	PT INDO.(Only)
24	Chassis Back,SECC,0.8t	046102042911	1	KS
	Chassis Back,SECC,0.8t	046102042921	1	A
	Chassis Back,SECC,0.8t	046102042951	1	D
	Chassis Back,SECC,0.8t	046102042991	1	PT.INDO
25	Cord,AC Power	4308007310	1	KS
	Cord,AC Power	4308001410	1	A
	Cord,AC Power	4308000430	1	D,PT INDO
26	Holder, AC Cord	6518002310	1	KS,D,PT INDO
	Holder, AC Cord	6518002320	1	A
27	Adaptor, AC	4428300410	1	PT INDO.
28	Terminal, Ground	4408104910	1	KS(Only)
29	Cover Insulation, PVC,0.5t	4835023410	1	UK(Only)
30	Mecha CDP, ILU04A	5728000450	1	
31	Cover Top, SECC,0.8t	046122021011	1	
VR1	Volume Mic	3228018010	1	KS
VR1	Volume Mic	3208069210	1	
SW1	Switch,Push	4628055810	1	
SW2-SW2	Switch Tact	4658003710	22	

Ref.No.	Description	Part No.	Q'ty	Version
	Hardware Kit			
S1-S42	Screw, BTC 3X8B	8109230083	42	
S43-S44	Screw Ground	8155000710	2	
S45-S50	Screw, BTC 3X8B	8109230083	6	
S51	Screw #2PTC 4 x 6Y	8119240061	1	
S52-S57	Screw WSAM 4 x 8B			
	Miscellaneous			
P1	PCB Main	4002522100	1	
P2	PCB Power S/W	4002522150	1	
P3	PCB Voltage Select	4002522140	1	
P4	PCB Front 1	4002522110	1	
P5	PCB Front 2	4002522120	1	
P6	PCB Headphone	4002522130	1	A, D,PT INDO.
P7	PCB Mic	4005512400	1	KS
P8	PCB Graphic	4005512410	1	KS
	Caple FPC, 22P, 220 mm	4118622159	1	
	Lead Ass'y, 2P, 600mm, CNT101 To CNT101	436102603031	1	
	Cable FPC, 22P, CNT106 To CNT106A	4426001022	1	
	Lead Ass'y, 6P, 600 mm, CNT107 To CNT107	436206603032	1	KS
	Lead Ass'y, 5P, 400 mm, CNT109 To CNT109	436105403031	1	

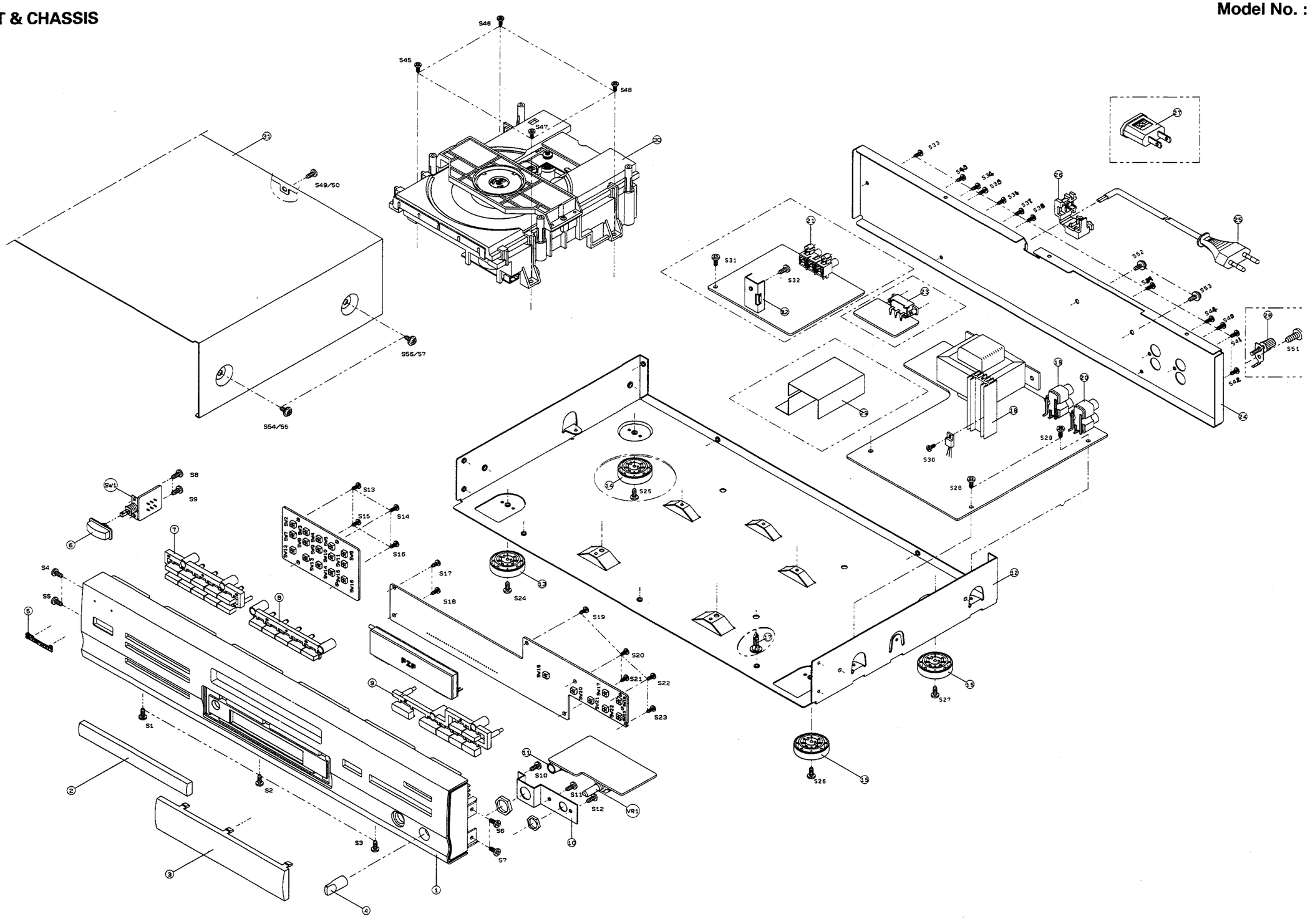
PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ⚠ in the parts list and the safety can be of special significance. When replacing a component identified with ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

EXPLODED VIEW (I)

CABINET & CHASSIS

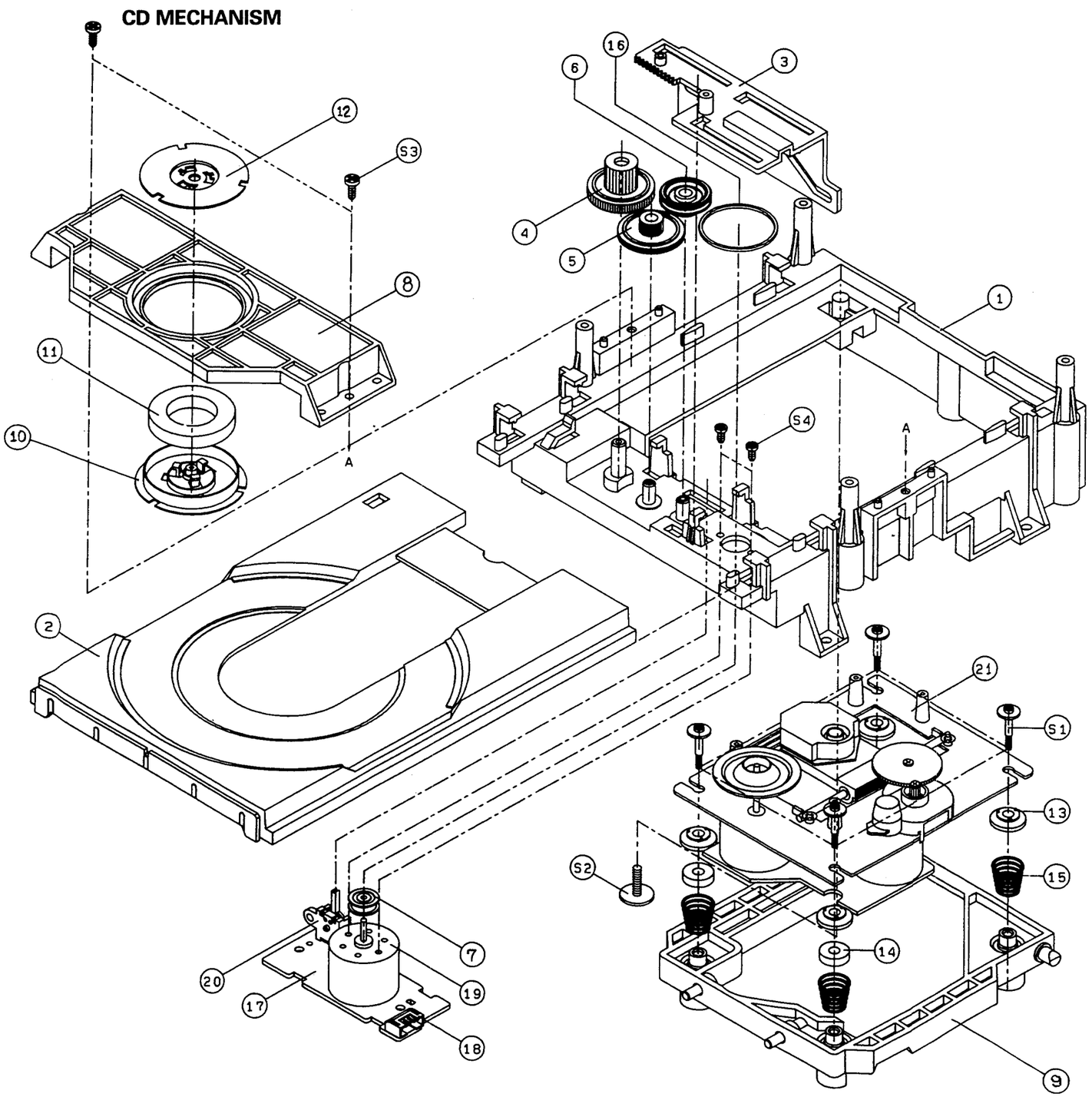
Model No. : CD3050R



EXPLODED VIEW (II)

CD MECHANISM

Model No. : CD3050R

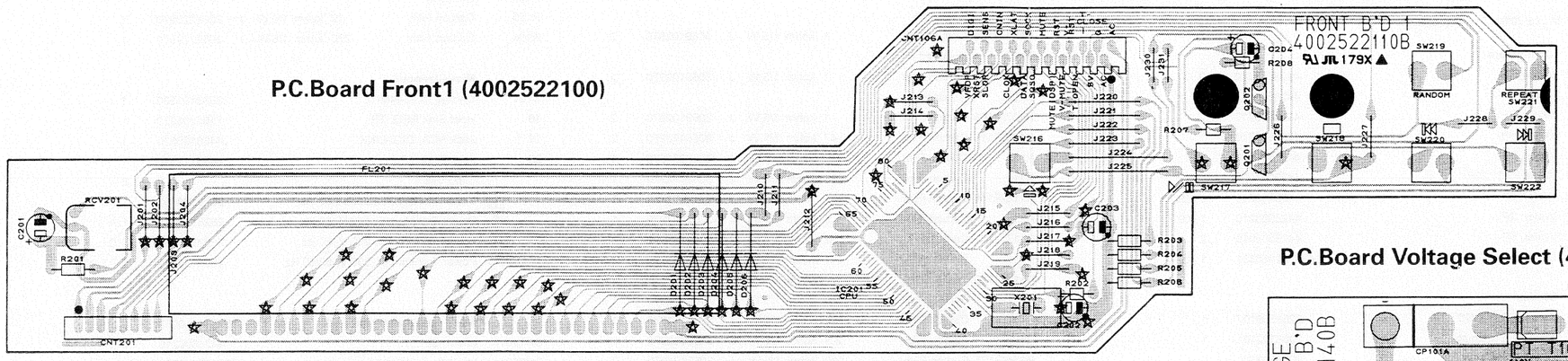


PARTS LIST					
NO.	PART No.	Rev.	DESCRIPTION	Q'ty	REMARK
1	6021601210		BODY MECHA	1	
2	6021800310		TRAY DISC	1	COLOR:BLACK
3	7142000410		CAM SLIDE	1	
4	7103001610		GEAR LOADING	1	
5	7103001710		GEAR CENTER	1	
6	7103001810		GEAR PULLEY	1	
7	7113001310		PULLEY MOTOR	1	
8	6023601210		CHUCK FRAME	1	
9	6062000320		BASE DRIVE UNIT	1	A'ssy SHAFT
10	6063103010		BASE MAGNET	1	
11	5125000910		MAGNET	1	
12	6023408610		COVER MAGNET	1	
13	6715018420		RUBBER DAMPING	4	
14	6705021910		SPONGE DAMPING	2	FRONT ONLY(2EA)
15	6555009220		SPRING DAMPING	4	
16	7165002610		BELT (ϕ 24 × 1 × 1)	1	
17			PCB MOTOR	1	
18	4428525550		CNT GIL-05P-S2L2-EF	1	
19	5558200210		MOTOR RF310T-11400	1	
20	4638003210		SWITCH LEVER (SSCF-21)	1	
21	5728001010		CD DRIVE UNIT	1	KSM-2101-ABM
SCREWS					
S1	8155001120		SCREW DAMPING	4	
S2	8155001210		SCREW MECHA	1	
S3	8009120051		SCREW BM 2 × 5Y	2	
S4	8159626081		SCREW #2WPT 2.6 × 8Y	2	

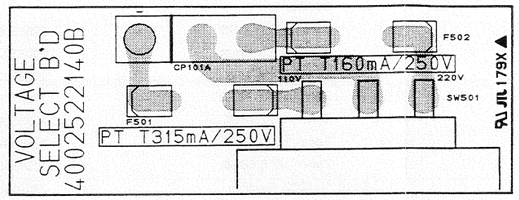
PRINTED CIRCUIT BOARDS

Model No. : CD3050R

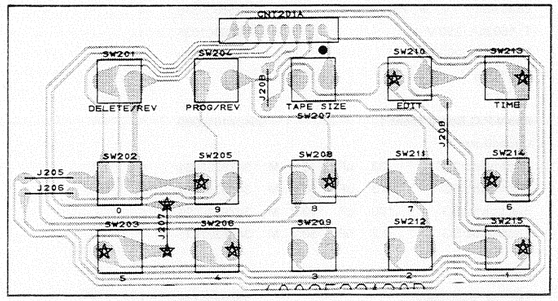
P.C.Board Front1 (4002522100)



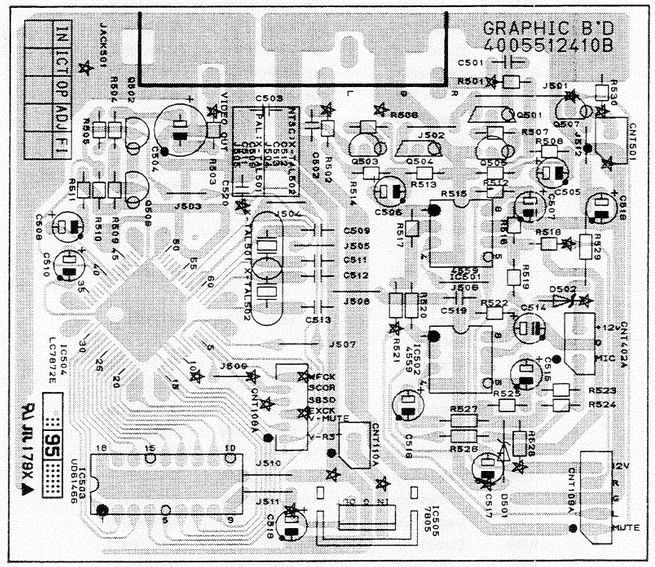
P.C.Board Voltage Select (4002522140)



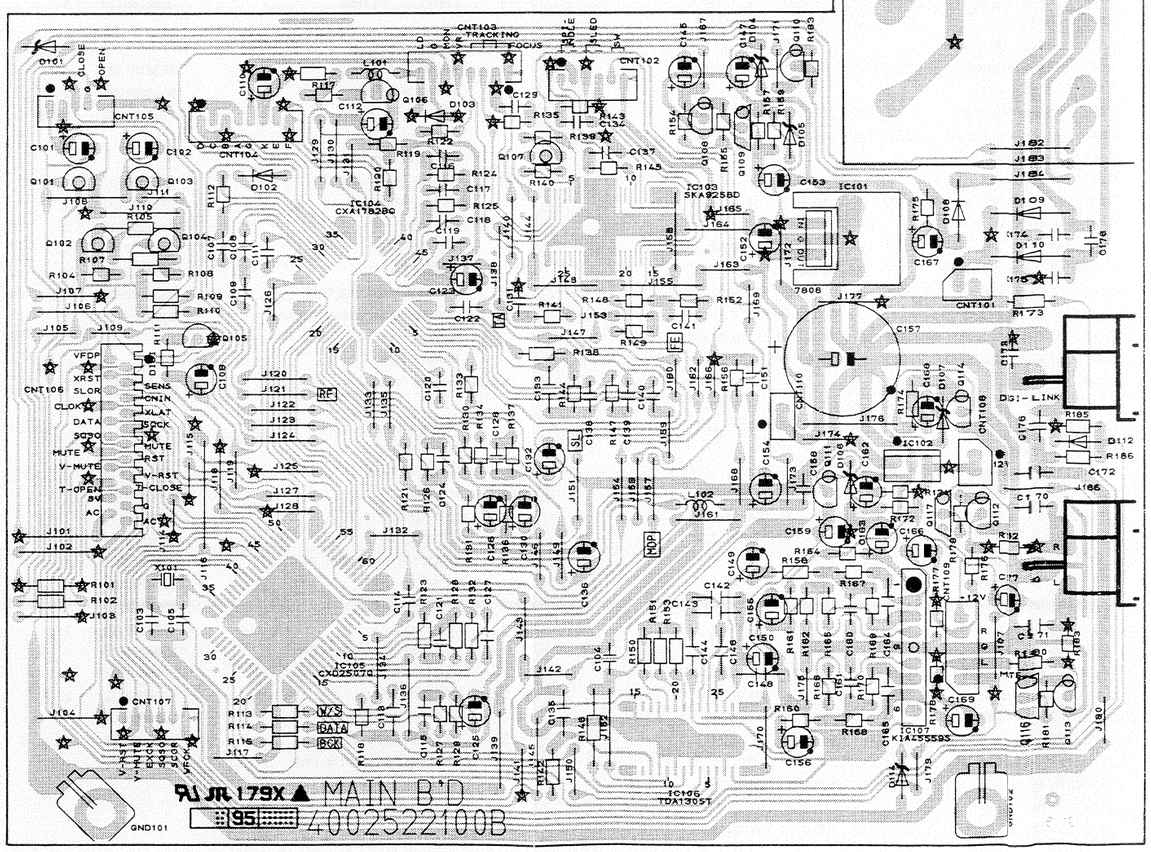
P.C.Board Front2 (4002522120)



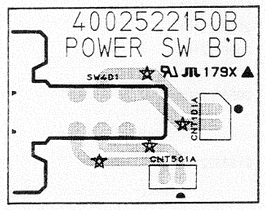
P.C.Board Graphic (4005512410)



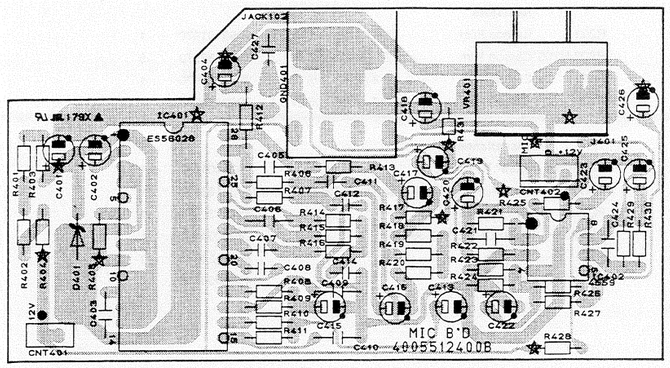
P.C.Board Main (4002522100)



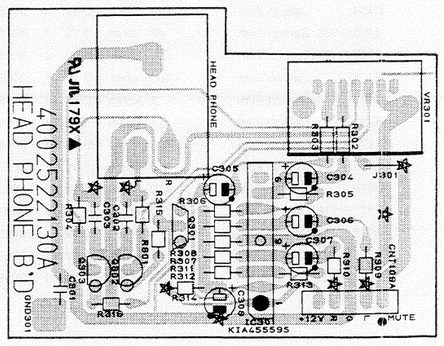
P.C.Board Power S/W (4002522150)



P.C.Board Mic (4005512400)



P.C.Board Headphone (4002522130)



ELECTRICAL PARTS LIST

Ref.No.	Description						Part No.	Q'ty	Version
	PRODUCT SAFETY NOTICE : Products marked with ⚠ have special characteristics important to safety. If you replace these components, read carefully the product safety notice in the manual. Resistor/Capacitor Tolerance, D : (±0.5%), J : (±5%), K : (±10%), M : (±20%), Z : (+80, -20%).								
	Ass'y P.C.Board Main						054041010057		
	Capacitors								
C101/C102	Electrolytic SG	100	uF	10 V	M		3479310121	2	
C103	Ceramic Disc, CH	33	pF	50 V	Z		3528330210	1	
C104	Electrolytic SG	4.7	uF	50 V	M		3479347971	1	
C105	Ceramic Disc, CH	33	pF	50 V	Z		3528330210	1	
C106	Not used !								
C107	Mylar	0.01	uF	100 V	J		3679103120	1	
C108	Mylar	0.033	uF	100 V	J		3679333120	1	
C109	Mylar	0.01	uF	100 V	J		3679103120	1	
C110	Electrolytic SG	33	uF	16 V	M		3479333031	1	
C111	Mylar	0.033	uF	100 V	J		3679333120	1	
C112	Electrolytic SG	22	uF	25 V	M		3479322041	1	
C113	Ceramic Tubular	220	pF	50 V	J		3519221935	1	
C114-C117	Mylar	0.01	uF	100 V	J		3679103120	4	
C118	Mylar	0.022	uF	100 V	J		3679223120	1	
C119	Mylar	0.1	uF	100 V	J		3679104120	1	
C120	Mylar	0.033	uF	100 V	J		3679333120	1	
C121	Mylar	0.047	uF	100 V	J		3679473120	1	
C122	Not used !								
C123	Electrolytic SG	100	uF	10 V	M		3479310121	1	
C124	Not used !								
C125	Electrolytic SG	4.7	uF	50 V	M		3479347971	1	
C126	Electrolytic SG	22	uF	25 V	M		3479322041	1	
C127	Ceramic Disc	1000	pF	50 V	Z		3519102935	1	
C128	Mylar	0.047	uF	100 V	J		3679473120	1	
C129	Not used !								
C130	Electrolytic SG	3.3	uF	50 V	M		3479333971	1	
C131	Not used !								
C132	Electrolytic SG	4.7	uF	50 V	M		3479347971	1	
C133	Ceramic Tubular	2200	pF	10 V	J		3519222915	1	
C134	Not used !								
C135	Not used !								
C136	Electrolytic SG	100	uF	10 V	M		3479310121	1	
C137	Not used !								
C138-C141	Mylar	0.1	uF	100 V	J		3679104120	4	
C142/C143	Ceramic Tubular	470	pF	50 V	J		3519471935	2	
C144	Ceramic Disc	1000	pF	50 V	Z		3519102935	1	
C145	Electrolytic SG	0.47	uF	50 V	M		3479347871	1	
C146	Ceramic Disc	1000	pF	50 V	Z		3519102935	1	
C147	Electrolytic SG	22	uF	50 V	M		3479322071	1	
C148	Not used !								
C149	Electrolytic SG	100	uF	10 V	M		3479310121	1	
C150	Electrolytic SG	1	uF	50 V	M		3479310971	1	
C151	Not used !								
C152	Electrolytic SG	10	uF	50 V	M		3479310071	1	
C153	Electrolytic SG	22	uF	25 V	M		3479322041	1	
C154-C156	Electrolytic SG	100	uF	10 V	M		3479310121	3	
C157	Electrolytic SG	2200	uF	25 V	M		3409322249	1	
C158	Not used !								
C159	Electrolytic SG	100	uF	10 V	M		3479310121	1	
C160/C161	Mylar	0.002	uF	100 V	J		3679222120	2	
C162/C163	Electrolytic SG	47	uF	10 V	M		3479347021	2	
C164/C165	Ceramic Tubular	220	pF	50 V	J		3519221935	2	
C166	Electrolytic SG	10	uF	50 V	M		3479310071	1	
C167	Electrolytic SG	22	uF	50 V	M		3479322071	1	
C168/C169	Electrolytic SG	10	uF	50 V	M		3479310071	2	
C170/C171	Mylar	0.002	uF	100 V	J		3679222120	2	
C172/C173	Ceramic Disc	0.1	uF	50 V	Z		3579104530	2	
C174/C175	Mylar	0.047	uF	100 V	J		3679473120	1	
C176	Not used !								
C178	Mylar	0.047	uF	100 V	J		3679473120	1	

Ref.No.	Description	Part No.	Q'ty	Version
	Connectors			
CNT101	Wafer, 2P	4428508210	2	
CNT102	Wafer, 6P	4428516510	1	
CNT103	Wafer, 8P	4428516710	2	
CNT104	Wafer, 8P	4428516710	1	
CNT105	Wafer, 5P	4428516410	1	
CNT106	Wafer FPC, 22P	4426001022	2	
CNT107	Wafer, 6P	4428516510	2	KS
CNT108	Wafer, 2P	4428508210	1	KS
CNT109	Wafer, 5P	4428506910	2	
CNT110	Lead Ass'y, 2P, 450 mm	436102453331	1	KS
	Diodes			
D101	Zener, UZ 9.1BSC	2258599107	1	
D102	1N4148, Switching	2058322101	1	
D103	1N4148, Switching	2058322101	1	
D104	Zener, UZ 30.0BSC	2258599128	1	
D105	Zener, UZ 9.1BSC	2258599107	1	
D106	Zener, UZ 5.6BSB	2258599104	1	
D107	Zener, UZ 5.6BSB	2258599104	1	
D108-D110	1N4002, Rectifier	2258100135	3	
D111	Not used !			
D112	1N4148, Switching	2058322101	1	
D113	Not used !			
D114	Zener, UZ, 5.1 BSB	2258599103	1	
	Fuse			
F101	SB, 350 mA, 125 V	5508101421	1	A
	T, 160 mA, 250 V	5508301035	1	D
	SB, 160 mA, 250 V	5508101030	1	KS
	Integrated Circuits			
IC101	KA7808, Regulator	2168602101	1	
IC102	KA7812, Regulator	2168606104	1	
IC103	KA9258D	2168202120	1	
IC104	CXA1782BQ	2138022117	1	
IC105	CXD2507Q	2138022120	1	
IC106	TDA1305T, DAC/FILTER	2138029001	1	
IC107	KIA4559S/KIA75559S, OP Amp	2168206103	1	
	Coils			
L101/L102	Inductor, 10 uH	2648610082	2	
	Transistors			
Q101	MPSA06Y	2208606114	1	
Q102	MPSA56Y, PNP	2208206113	1	
Q103	MPSA06Y	2208606114	1	
Q104	MPSA56Y, PNP	2208206113	1	
Q105	KTD1302, NPN	2208606112	1	
Q106	KTA1015Y/BKTA1266, PNP	2208206105	1	
Q107	MPSA56Y, PNP	2208206113	1	
Q108	KTD1302, NPN	2208606112	1	
Q109	DTC114YS	2208622106	1	
Q110	KTA1015Y/BKTA1266, PNP	2208206105	1	
Q111	KTC1815Y/BKTC3198, NPN	2208606104	1	
Q112/Q113	KTD1302, NPN	2208606112	2	
Q114	KTC1815Y/BKTC3198, NPN	2208606104	1	
Q115	DTA114YS(KRA107M)	2208222105	1	
Q116	DTA114YS/KRA107M, PNP	2238006103	1	

Ref.No.	Description						Part No.	Q'ty	Version
	Resistors								
R101/R102	Carbon Film	1	kohm	1/5 W	J		3069102970	2	
R103	Not used !								
R104/R105	Carbon Film	1	kohm	1/5 W	J		3069102970	2	
R106	Not used !								
R107/R108	Carbon Film	1	kohm	1/5 W	J		3069102970	2	
R109/R110	Carbon Film	47	kohm	1/5 W	J		3069473970	2	
R111	Carbon Film	330	ohm	1/5 W	J		3069331970	1	
R112	Carbon Film	39	kohm	1/5 W	J		3069393970	1	
R113-R115	Carbon Film	680	ohm	1/5 W	J		3069681970	3	
R116	Carbon Film	1	kohm	1/5 W	J		3069102970	1	
R117	Carbon Film	22	ohm	1/5 W	J		3069220970	1	
R118	Carbon Film	1	mohm	1/5 W	J		3069105970	1	
R119/R120	Carbon Film	24	kohm	1/5 W	J		3069243970	1	
R121	Carbon Film	120	kohm	1/5 W	J		3069124970	1	
R122	Carbon Film	100	ohm	1/5 W	J		3069101970	1	
R123	Carbon Film	3.3	kohm	1/5 W	J		3069332970	1	
R124/R125	Carbon Film	100	kohm	1/5 W	J		3069104970	2	
R126	Carbon Film	47	kohm	1/5 W	J		3069473970	1	
R127	Carbon Film	100	kohm	1/5 W	J		3069104970	1	
R128	Carbon Film	3.3	kohm	1/5 W	J		3069332970	1	
R129	Carbon Film	10	kohm	1/5 W	J		3069103970	1	
R130	Carbon Film	82	kohm	1/5 W	J		3069823970	1	
R131	Carbon Film	8.2	kohm	1/5 W	J		3069822970	1	
R132	Carbon Film	10	kohm	1/5 W	J		3069103970	1	
R133	Carbon Film	68	kohm	1/5 W	J		3069683970	1	
R134	Carbon Film	75	kohm	1/5 W	J		3069753970	1	
R135	Not used !								
R136	Carbon Film	15	kohm	1/5 W	J		3069153970	1	
R137	Carbon Film	470	kohm	1/5 W	J		3069474970	1	
R138	Carbon Film	10	kohm	1/5 W	J		3069103970	1	
R139/R140	Carbon Film	4.7	ohm	1/5 W	J		3069472970	2	
R141	Not used !								
R142	Carbon Film	100	ohm	1/5 W	J		3069101970	1	
R143	Not used !								
R144	Carbon Film	10	kohm	1/5 W	J		3069103970	1	
R145	Not used !								
R146	Carbon Film	10	kohm	1/5 W	J		3069103970	1	
R147	Carbon Film	680	kohm	1/5 W	J		3069684970	1	
R148-R153	Carbon Film	10	kohm	1/5 W	J		3069103970	6	
R154	Carbon Film	47	kohm	1/5 W	J		3069473970	1	
R155	Carbon Film	1	kohm	1/5 W	J		3069102970	1	
R156	Carbon Film	47	kohm	1/5 W	J		3069473970	1	
R157	Carbon Film	1	kohm	1/5 W	J		3069102970	1	
R158	Carbon Film	6.8	kohm	1/5 W	J		3069682970	1	
R159	Carbon Film	1	kohm	1/5 W	J		3069102970	1	
R160	Carbon Film	6.8	kohm	1/5 W	J		3069682970	1	
R161/R162	Carbon Film	22	kohm	1/5 W	J		3069223970	2	
R163	Carbon Film	4.7	kohm	1/5 W	J		3069472970	1	
R164	Carbon Film	100	ohm	1/5 W	J		3069101970	1	
R165/R166	Carbon Film	47	kohm	1/5 W	J		3069473970	2	
R167-R170	Carbon Film	7.5	kohm	1/5 W	J		3069752970	4	
R171	Carbon Film	100	ohm	1/5 W	J		3069101970	1	
R172	Carbon Film	1	kohm	1/5 W	J		3069102970	1	
R173	Carbon Film	5.1	kohm	1/5W	J		3069512970	1	
R174	Carbon Film	390	ohm	1/5 W	J		3069391970	1	
R175	Carbon Film	10	kohm	1/5 W	J		3069103970	1	
R176	Carbon Film	470	ohm	1/5 W	J		3069471970	1	
R177/R178	Carbon Film	100	kohm	1/5 W	J		3069104970	2	
R179	Carbon Film	1	kohm	1/5 W	J		3069102970	1	
R180/R181	Carbon Film	1	kohm	1/5 W	J		3069102970	2	
R182/R183	Carbon Film	470	ohm	1/5 W	J		3069471970	2	

Ref.No.	Description						Part No.	Q'ty	Version
R184	Not used !								
R185	Carbon Film	22	kohm	1/5 W	J		3069223970	1	
R186	Carbon Film	220	kohm	1/5 W	J		3069224970	1	
	Miscellaneous								
X101	Crystal,16.9344MHz						3938101500	1	
18	Heat Sink REG. TR.						7505206220	1	
19	Jack RCA, DIGI-LINK						4438105020	1	
20	Jack RCA, 2P						4438111310	1	
	Clip Fuse							2	
⚠	Power Transfomer, 220 V, 60 Hz						2828100451	1	KS
⚠	Power Transfomer, 120 V, 60 Hz						2828100321	1	A
⚠	Power Transfomer, 230 V, 50 Hz						2828100331	1	D
⚠	Power Transfomer, 230 V, 50/60 Hz						2828100371	1	PT INDO.
	Ass'y P.C.Board Power S/W						054041010058		
CNT101A	Wafer, 2P						4428508210	1	
CNT501A	Lead Ass'y, 2P, 300 mm						436102303331	1	
SW1	Switch Push						4628055810	1	
	Ass'y P.C.Board Voltage Select						054040210059		PT INDO.(Only)
CP101	Lead Ass'y, LV, 3P, 180 mm						4358850318	1	
⚠ F501	T, 160 mA, 250 V						5508301035	1	
⚠ F502	T, 315 mA, 250 V						5508301434	1	
	Clip Fuse							4	
	Ass'y P.C.Board Front 1						054041010060		
	Capacitors								
C201	Electrolytic SG	33	uF	16 V	M		3479333031	1	
C202	Electrolytic SG	3.3	uF	50 V	M		3479333971	1	
C203	Electrolytic SG	100	uF	10 V	M		3479310121	1	
C204	Electrolytic SG	2.2	uF	50 V	M		3479322971	1	
	Diodes								
D201	1N4148, Switching						2058322101	1	
D202	1N4148, Switching						2058322101	1	
D203	1N4148, Switching						2058322101	1	
D204	1N4148, Switching						2058322101	1	
D205	1N4148, Switching						2058322101	1	
D206	1N4148, Switching						2058322101	1	
	Integrated Circuit								
IC201	CXP82320-308Q, CPU						2138322187	1	
	Transistors								
Q201	DTA114YS/KRA107M, PNP						2238006103	1	
Q202	DTC114YS						2208622106	1	
	Resistors								
R201	Carbon Film	100	ohm	1/5 W	J		3069101970	1	
R202-R206	Carbon Film	3.3	kohm	1/5 W	J		3069332970	5	
R207	Carbon Film	3	kohm	1/5 W	J		3069302970	1	
R208	Carbon Film	47	kohm	1/5 W	J		3069473970	1	
	Miscellaneous								
CNT106A	Wafer, FPC, 22P						4426001022	1	
CNT201	Lead Ass'y, 8P, 160 mm, To CNT201A						436408163232	1	
FL201	FIP, 8BDM6						2328130319	1	
RCV201	SENSOR, RPM-638CBR-L						2408004005	1	
X201	10 MHz						3938124010	1	
SW17-SW23	Switch Tact						4658003710	15	

Ref.No.	Description	Part No.	Q'ty	Version
	Ass'y P.C.Board Headphone	054040210062		A, D, PT INDO
	Capacitors			
C301	Ceramic Disc 0.1 uF 50 V Z	3579104530	1	
C302	Ceramic Tubular 1500 pF 10 V J	3519152915	1	
C303	Ceramic Tubular 1500 pF 10 V J	3519152915	1	
C304-C307	Electrolytic SG 10 uF 50 V M	3479310071	4	
C308	Electrolytic SG 100 uF 10 V M	3479310121	1	
	Integrated Circuit			
IC301	KIA4559S/KIA75559S, OP Amp	2168206103	1	
	Transistors			
Q301	DTA114YS/KRA107M, PNP	2238006103	1	
Q302	KTD1302, NPN	2208606112	1	
Q303	KTD1302, NPN	2208606112	1	
	Resistors			
R301	Carbon Film 56 ohm 1/5 W J	3069560970	1	
R302/R303	Carbon Film 22 ohm 1/5 W J	3069220970	2	
R304	Carbon Film 56 ohm 1/5 W J	3069560970	1	
R305	Carbon Film 470 ohm 1/5 W J	3069471970	1	
R306	Carbon Film 1.8 kohm 1/5 W J	3069182970	1	
R307	Carbon Film 47 kohm 1/5 W J	3069473970	1	
R308	Carbon Film 22 kohm 1/5 W J	3069223970	1	
R309/R310	Carbon Film 1 kohm 1/5 W J	3069102970	2	
R311	Carbon Film 47 kohm 1/5 W J	3069473970	1	
R312	Carbon Film 1.8 kohm 1/5 W J	3069182970	1	
R313	Carbon Film 470 ohm 1/5 W J	3069471970	1	
R314	Carbon Film 22 kohm 1/5 W J	3069223970	1	
R315	Carbon Film 3 kohm 1/5 W J	3069302970	1	
R361	Carbon Film 3 kohm 1/5 W J	3069302970	1	
	Miscellaneous			
CNT109A	Lead Ass'y, 5P, 220 mm	436105223331	1	
VR1	Volume Mic	3208069210	1	
11	Jack Phone, Gold	4438005610		
	Ass'y P.C.Board Mic	054040810063		KS(Only)
	Capacitors			
C401	Electrolytic SG 100 uF 10 V M	3479310121	1	
C402	Electrolytic SG 47 uF 10 V M	3479347021	1	
C403	Ceramic Disc 0.01 uF 50 V Z	3579103530	1	
C404	Electrolytic SG 0.47 uF 50 V M	3479347871	1	
C405/C406	Ceramic Tubular 560 pF 50 V J	3519561935	2	
C407/C408	Ceramic Disc 0.047 uF 50 V Z	3579473530	2	
C409/C410	Ceramic Disc 0.01 uF 50 V Z	3579103530	2	
C411	Mylar 0.006 uF 100 V J	3679562120	1	
C412	Mylar 0.033 uF 100 V J	3679333120	1	
C413	Electrolytic SG 0.33 uF 50 V M	3479333871	1	
C414	Mylar 0.006 uF 100 V J	3679562120	1	
C415	Electrolytic SG 0.33 uF 50 V M	3479333871	1	
C416/C417	Electrolytic SG 4.7 uF 50 V M	3479347971	2	
C418	Electrolytic SG 0.47 uF 50 V M	3479347871	1	
C419	Electrolytic SG 0.1 uF 50 V M	3479310871	1	
C420	Electrolytic SG 0.47 uF 50 V M	3479347871	1	
C421	Ceramic Tubular 220 pF 50 V J	3519221935	1	
C422	Electrolytic SG 10 uF 25 V M	3479310041	1	
C423	Electrolytic SG 10 uF 35 V M	3479310061	1	
C424	Ceramic Tubular 470 pF 50 V J	3519471935	1	
C425	Electrolytic SG 10 uF 35 V M	3479310061	1	
C426	Electrolytic SG 0.47 uF 50V	3479347871	1	

Ref.No.	Description	Part No.	Q'ty	Version
	Connectors			
CNT402	Lead Ass'y, 3P, 600 mm	436103607131	1	
CNT402A	Wafer, 3P	4428505710	1	
	Diode			
D401	Zener, UZ 5.6BSB	2258599104	1	
	Integrated Circuits			
IC401	ES56028	2138633001	1	
IC402	KIA4559S/KIA75559S, OP AMP	2168206103	1	
	Resistors			
R401-R404	Carbon Film 22 ohm 1/5 W J	3069220970	4	
R405	Carbon Film 27 kohm 1/5 W J	3069273970	1	
R406	Carbon Film 15 kohm 1/5 W J	3069153970	1	
R407	Carbon Film 3.3 kohm 1/5 W J	3069332970	1	
R408	Carbon Film 7.5 kohm 1/5 W J	3069752970	1	
R409	Carbon Film 75 kohm 1/5 W J	3069753970	1	
R410	Carbon Film 7.5 kohm 1/5 W J	3069752970	1	
R411	Carbon Film 75 kohm 1/5 W J	3069753970	1	
R412/R413	Carbon Film 10 kohm 1/5 W J	3069103970	2	
R414	Carbon Film 15 kohm 1/5 W J	3069153970	1	
R415	Carbon Film 10 kohm 1/5 W J	3069103970	1	
R416/R417	Carbon Film 15 kohm 1/5 W J	3069153970	2	
R418	Carbon Film 8.2 kohm 1/5 W J	3069822970	1	
R419	Carbon Film 15 kohm 1/5 W J	3069153970	1	
R420	Carbon Film 10 kohm 1/5 W J	3069103970	1	
R421	Carbon Film 18 kohm 1/5 W J	3069183970	1	
R422	Carbon Film 4.7 kohm 1/5 W J	3069472970	1	
R423	Carbon Film 47 kohm 1/5 W J	3069473970	1	
R424	Carbon Film 3.3 kohm 1/5 W J	3069332970	1	
R425	Carbon Film 560 ohm 1/5 W J	3069561970	1	
R426	Carbon Film 3.3 kohm 1/5 W J	3069332970	1	
R427	Carbon Film 47 kohm 1/5 W J	3069473970	1	
R428	Carbon Film 22 ohm 1/5 W J	3069221970	1	
R429	Carbon Film 4.7 kohm 1/5 W J	3069472970	1	
R430	Carbon Film 910 kohm 1/5 W J	3069911970	1	
R431	Carbon Film 100 kohm 1/5W J	3069104970	1	
	Miscellaneous			
VR1	Volume Mic	3228018010	1	
	Ass'y P.C.Board Graphic	054040810064		KS(Only)
	Capacitors			
C501	Mylar 0.002 uF 100V	3679222120	1	
C502	Mylar 0.002 uF 100V	3679222120	1	
C503	Ceramic Disc 0.1 uF 50 V Z	3579104530	1	
C504	Electrolytic SG 470 uF 6.3 V M	3479347111	1	
C505/R506	Electrolytic SG 10 uF 50 V M	3479310071	2	
C507/C508	Electrolytic SG 47 uF 25 V M	3479347041	2	
C509	Not used !			
C510	Electrolytic SG 33 uF 16 V M	3479333031	1	
C511	Not used !			
C512/C513	Ceramic Tubular 33 pF 50 V J	3519330936	2	
C514	Electrolytic SG 47 uF 25 V M	3479347041	1	
C515/C516	Electrolytic SG 1 uF 50 V M	3479310971	2	
C517	Electrolytic SG 100 uF 10 V M	3479310121	1	
C518	Electrolytic SG 47 uF 25V	3479347041	1	
C519	Electrolytic SG 100 uF 16 V M	3409310131	1	
C526	Ceramic Disc 0.1 uF 50 V Z	3579104530	1	
	Connectors			

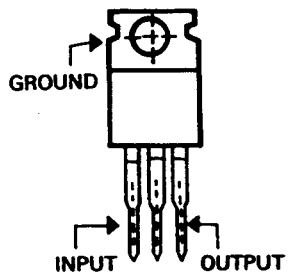
Ref.No.	Description	Part No.	Q'ty	Version
CNT501	Wafer, 2P	4428508210	1	
CNT501A	Lead Ass'y, 2P, 300 mm	436102303331	1	
	Diodes			
D501	Zener, UZ, 5.1 BSB	2258599103	1	
D502	Zener, UZ 9.1BSC	2258599107	1	
	Integrated Circuits			
IC501	KIA4559D	2168206104	1	
IC502	KIA4559D	2168206104	1	
IC503	DRAM, UD61466-10	2138031001	1	
IC504	LC7872E	2138017139	1	
⚠ IC505	KA7805, Regulator	2168602105	1	
	Transistors			
Q501	KTA114Y(KRA107M)	2238006103	1	
Q502	KTC1815Y/KTC3198, NPN	2208606104	1	
Q503	KTD1302, NPN	2208606112	1	
Q504	DTA114YS/KRA107M, PNP	2238006103	1	
Q505	KTD1302, NPN	2208606112	1	
Q506	KTA1015Y/BKTA1266, PNP	2208206105	1	
Q507	KTC1815Y/KTC3198, NPN	2208606104	1	
	Resistors			
R501/R502	Carbon Film 1 kohm 1/5 W J	3069102970	2	
R503	Carbon Film 75 ohm 1/5 W J	3069750970	1	
R504	Carbon Film 220 ohm 1/5 W J	3069221970	1	
R505	Carbon Film 1 kohm 1/5 W J	3069102970	1	
R506/R507	Carbon Film 3 kohm 1/5 W J	3069302970	2	
R508	Carbon Film 470 ohm 1/5 W J	3069471970	1	
R509/R510	Carbon Film 4.7 kohm 1/5 W J	3069472970	2	
R511	Carbon Film 75 ohm 1/5 W J	3069750970	1	
R512/R513	Carbon Film 100 kohm 1/5 W J	3069104970	2	
R514	Carbon Film 470 ohm 1/5 W J	3069471970	1	
R515	Carbon Film 100 ohm 1/5 W J	3069101970	1	
R516-R518	Carbon Film 3.3 kohm 1/5 W J	3069332970	3	
R519/R520	Carbon Film 2.7 kohm 1/5 W J	3069272970	2	
R521	Not used !			
R522	Carbon Film 100 ohm 1/5 W J	3069101970	1	
R523	Carbon Film 1 kohm 1/5 W J	3069102970	1	
R524/R525	Carbon Film 10 kohm 1/5 W J	3069103970	2	
R526	Carbon Film 680 ohm 1/5 W J	3069681970	1	
R527	Carbon Film 10 kohm 1/5 W J	3069103970	1	
R528	Carbon Film 1 kohm 1/5 W J	3069102970	1	
R529	Carbon Film 3 kohm 1/5 W J	3069302970	1	
R530	Carbon Film 51 kohm 1/5 W J	3069513970	1	
R531	Carbon Film 3.3 kohm 1/5W J	3938201950	1	
	Miscellaneous			
X501	Not used !			
X502	Resonator, 14.3198 MHz	3938201950	1	
21	Jack RCA, 3P	4438110710	1	
22	Heat Sink REG.TR	7505202410	1	

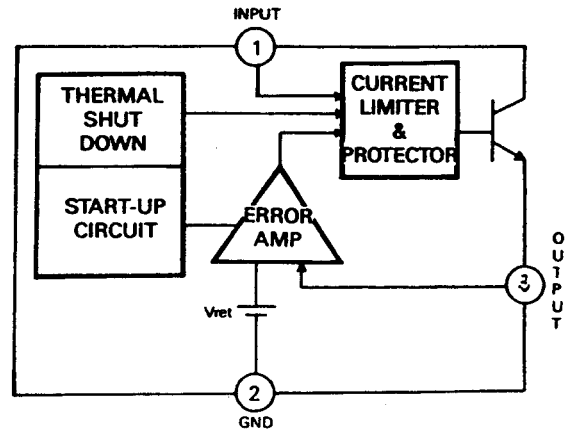
PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ⚠ in the parts list and the safety can be of special significance. When replacing a component identified with ⚠ , use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

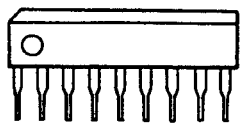
IC'S LEAD IDENTIFICATION & INTERNAL DIAGRAMS

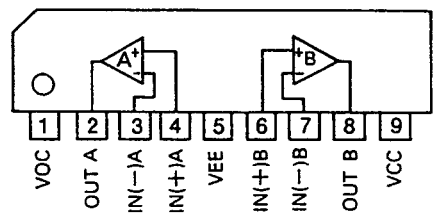
XA 78XX : IC101, IC102, IC505



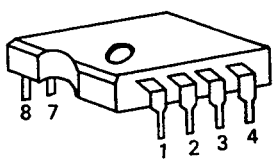


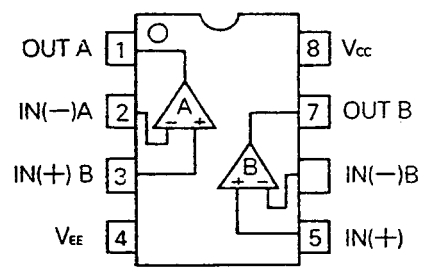
KIA 4559S/KIA 75559S : IC107, IC301, IC402





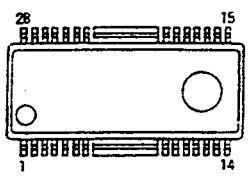
KIA 4559P : IC501, IC502



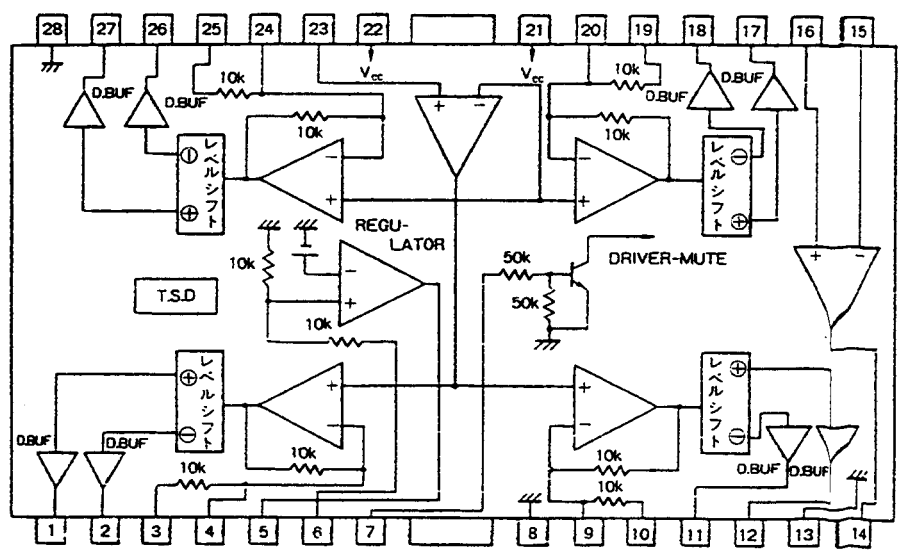


KA 9258D : IC103

Pin Diagram



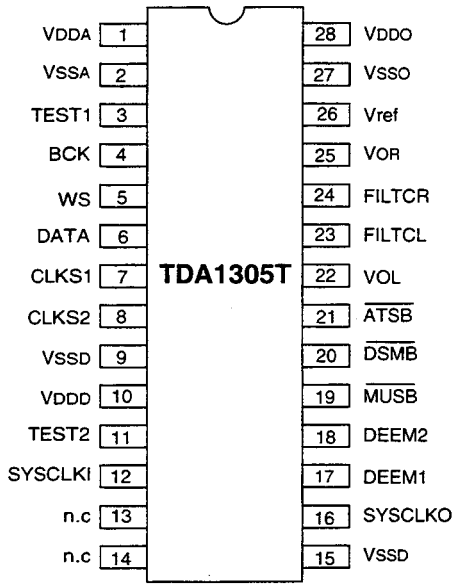
Block Diagram



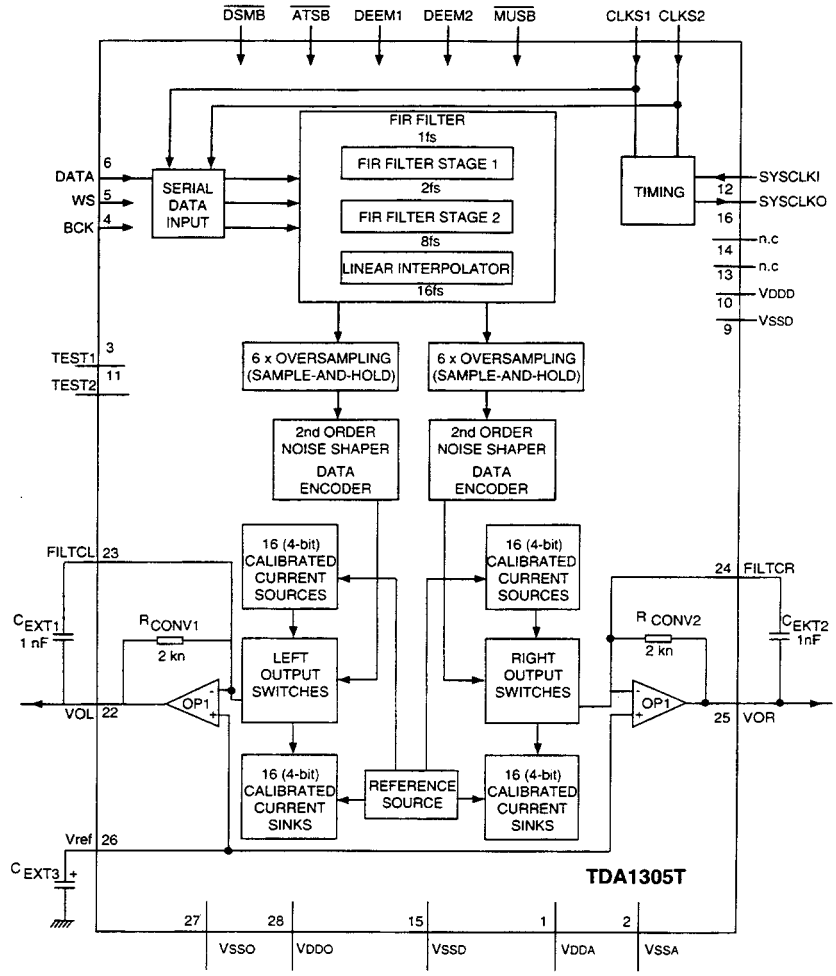
D.BUF : Drive Buffer T.S.D : Thermal Shutdown.

TDA 1305T : IC106

1. Pin Diagram



2. Block Diagram



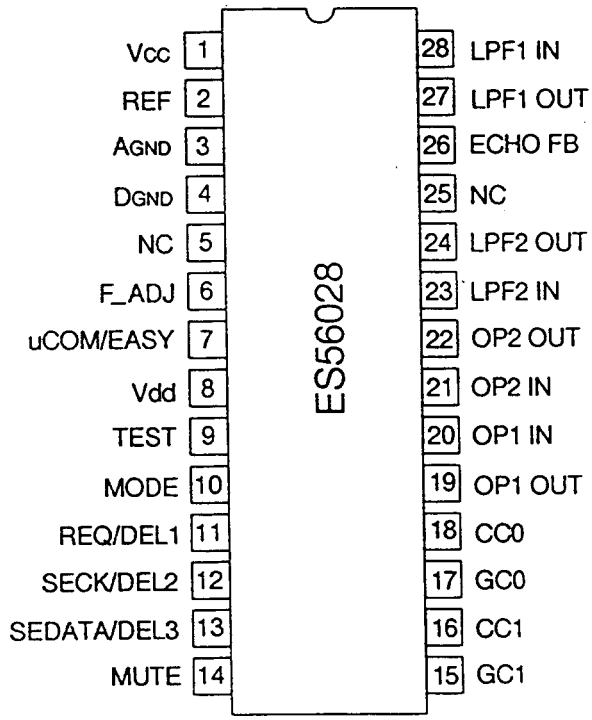
3. Pin Description

SYMBOL	PIN	DESCRIPTION
VDDA	1	analog supply voltage.
VSSA	2	analog ground
TEST1	3	test input; pin should be connected to ground (internal pull-down resistor)
BCK	4	bit clock input
WS	5	word select input
DATA	6	data input
CLKS1	7	clock selection 1 input
CLKS2	8	clock selection 2 input
VSSD	9	digital ground
VDDD	10	digital supply voltage
TEST2	11	test input; pin should be connected to ground (internal pull-down resistor)
SYSCLK1	12	system clock input
n.c.	13	not connected (this pin should be left open-circuit)
n.c.	14	not connected (this pin should be left open-circuit)
VSSD	15	digital ground

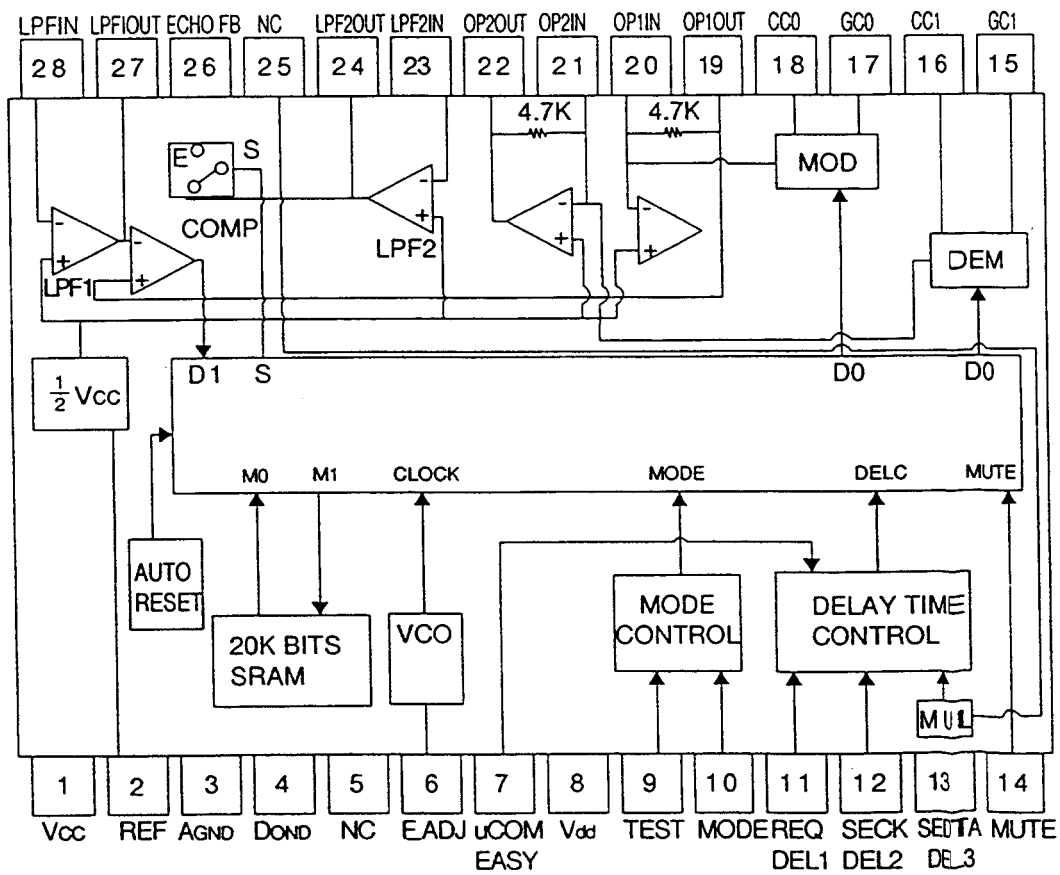
SYMBOL	PIN	DESCRIPTION
SYSCLKO	16	system clock output
DEEM1	17	de-emphasis on/off ; fDEEM 32 kHz, 44 kHz and 48 kHz
DEEM2	18	de-emphasis on/off ; fDEEM 32 kHz, 44 kHz and 48 kHz
MUSB	19	mute input (active LOW)
DSMB	20	double-speed mode input (active LOW)
ATSB	21	12 dB attenuation input (active LOW)
VOL	22	left channel output
FILTCL	23	capacitor tor left channel 1st ordeer filter function should be connected between pins 22 and 23
FILTCR	24	capacitor for right channel 1st order filter function should be connected between pins 25 and 24
VOR	25	right channel output
Vref	26	internal reference voltage for output channel (0.5VDD)
VSSO	27	operational amplifier ground
VDDO	28	operational amplifier supply voltage

ES56028 : IC702 (Echo Sound Processor)

1. Pin Diagram



2. Block Diagram

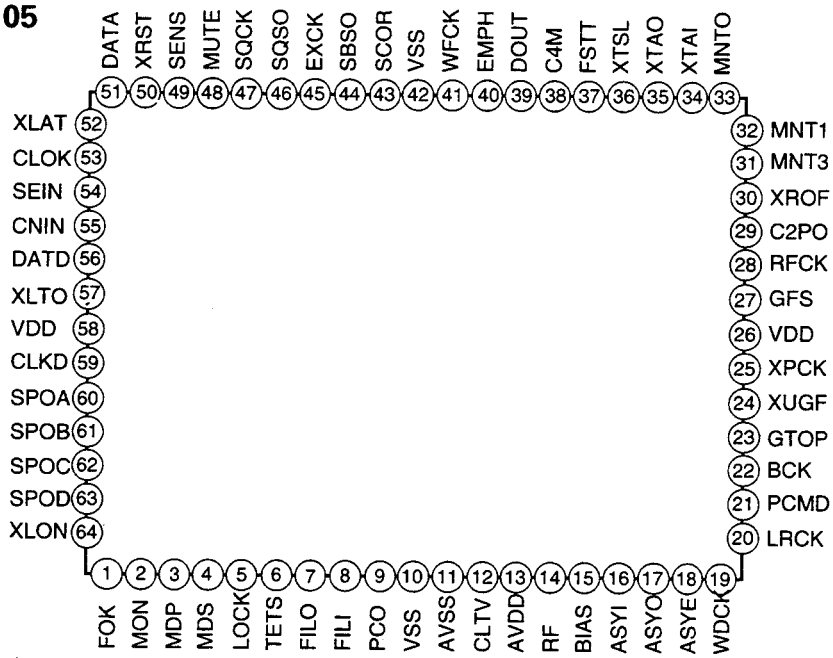

LPFIN LPFIOUT ECHO FB NC LPF2OUT LPF2IN OP2OUT OP2IN OP1IN OP1OUT CC0 GC0 CC1 GC1
28 27 26 25 24 23 22 21 20 19 18 17 16 15
4.7K
4.7K
MOD
DEM
COMP
LPF1
LPF2
½ Vcc
D1 S
D0 D0
M0 M1 CLOCK MODE DELC MUTE
AUTO RESET
20K BITS SRAM
VCO
MODE CONTROL
DELAY TIME CONTROL
MUL
1 2 3 4 5 6 7 8 9 10 11 12 13 14
Vcc REF AGND DGND NC EADJ uCOM EASY Vdd TEST MODE REQ DEL1 SECK DEL2 SEDTA DEL3 MUTE

3. Pin Description

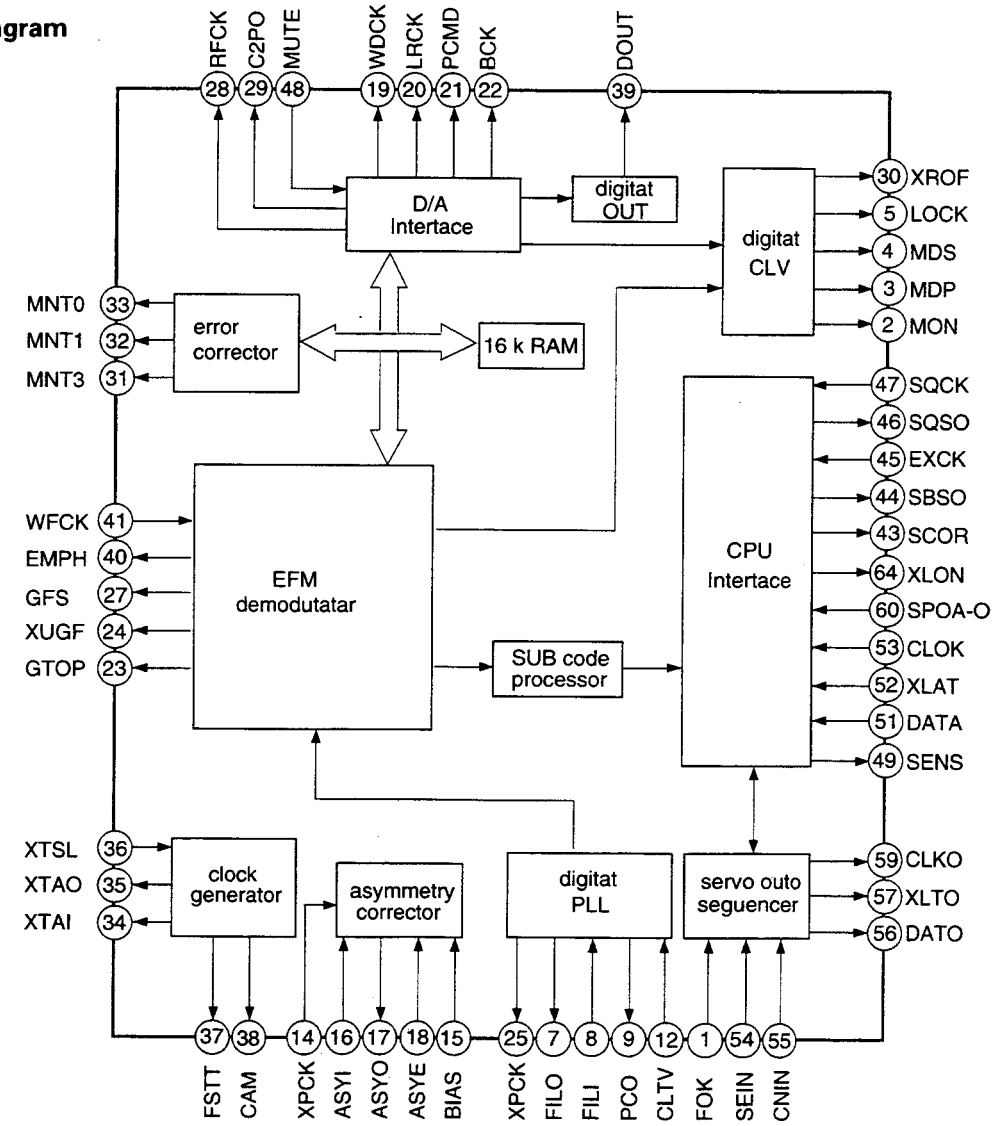
Pin	Name	I/O	Function
1	V_{CC}		Analog supply voltage input.
2	Ref		Analog reference voltage(=1/2 V_{CC})
3	A GND		Analog ground.
4	D GND		Digital ground.
5	NC		No connect.
6	F_adj	I	Frequency adjust
7	uCOM/EASY	I	A "high" on this input indicates uCOM mode--serial data control; a "low" on this input indicates EASY mode-- parallal data control.
8	V_{dd}		Digital supply voltage input.
9	Test	I	A "high" on this input indicates test mode; a "low" on this input indicates surround mode.
10	Mode	I	A "high" on this input indicates echo mode; a "low" on this input indicates surround mode.
11	Req/Del1	I	In uCOM mode, this input indicates data request signal; in easy mode, this input indicates delay time 1 setting.
12	Seck/Del2	I	In uCOM mode, this input indicates serial clock input; in easy mode, this input indicates delay time 3 setting.
13	Sedata/Del3	I	In uCOM mode, this input indicates serial data input; in easy mode, this input indicates delay time 3 setting.
14	Mute	I	A "high" on this input indicates mute control.
15	GC1		Gain control 1.
16	CC1		Current control 1.
17	GC0		Gain control 0.
18	CC0		Current control 0.
19	OP1 OUT	O	It can be used as modulated integrator by connecting capacitor.
20	OP1 IN	I	It can be used as modulated integrator by connecting capacitor.
21	OP2 IN	I	It can be used as demodulated integrator by connecting capacitor.
22	OP2 OUT	O	It can be used as demodulated integrator by connecting capacitor.
23	LPF2 IN	I	Low pass filter 2 input.
24	LPF2 OUT	O	Low pass filter 2 output.
25	NC		No connect.
26	Echo FB	O	Echo feedback pin. In echo mode, it can be adjusted the needed echo feedback.
27	LPF1 OUT	O	Low pass filter 1 output.
28	LPF1 IN	I	Low pass filter 1 input.

CXD 2507Q : IC105

1. Pin Diagram



2. Block Diagram



3. Pin Description

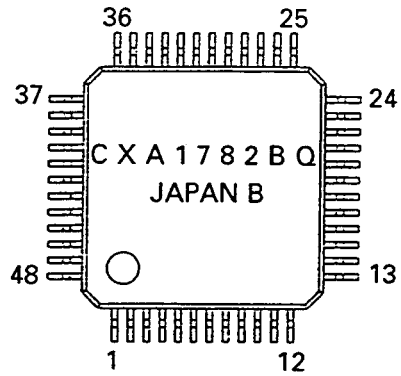
Pin No.	Symbol	I/O		Description
1	FOK	I		Focus OK input. Used for SENS output and the servo auto sequencer.
2	MON	O	1, 0	Spindle motor on/off control output.
3	MDP	O	1, Z, 0	Spindle motor servo control.
4	MDS	O	1, Z, 0	Spindle motor servo control.
5	LOCK	O	1, 0	GFS is sampled at 460 Hz; when GFS is high, this pin outputs a high signal. If GFS is low eight consecutive samples, this pin outputs low.
6	TEST	I		TEST pin. Normally GND.
7	FILO	O	Analog	Master PLL (slave=digital PLL) filter output.
8	FILI	I		Master PLL filter input.
9	PCO	O	1, Z, 0	Master PLL charge pump output.
10	V_{SS}	—	—	GND.
11	AV_{SS}	—	—	Analog GND.
12	CLTV	I		Master VCO control voltage input.
13	AV_{DD}	—	—	Analog power supply (+5 V)
14	RF	I		EFM signal input.
15	BIAS	I		Constant current input of asymmetry circuit.
16	ASYI	I		Asymmetry comparator voltage input.
17	ASYO	O	1, 0	EFM full-swing output (low=VSS, high=VDD).
18	ASYE	I		Low: asymmetry circuit off; high: asymmetry circuit on.
19	WDCK	O	1, 0	D/A interface. Word clock f=2Fs.
20	LRCK	O	1, 0	D/A interface. LR clock f=Fs.
21	PCMD	O	1, 0	D/A interface. Seria' data (two's complement, MSB first).
22	BCK	O	1, 0	D/A interface. Bit clock.
23	GTOP	O	1, 0	GTOP output.
24	XUGF	O	1, 0	XUGF output.
25	XPCK	O	1, 0	XPLCK output.
26	V_{DD}	—	—	Power supply (+5 V).
27	GFS	O	1, 0	GFS output.
28	RFCK	O	1, 0	RFCK output.
29	C2PO	O	1, 0	C2PO output.
30	XROF	O	1, 0	XRAOF output.
31	MNT3	O	1, 0	MNT 3 output.
32	MNT1	O	1, 0	MNT 1 output.
33	MNT0	O	1, 0	MNT 0 output.
34	XTAI	I		16.9344 MHz crystal oscillation circuit input, or 33.8688 MHz input.
35	XTAO	O	1, 0	16.9344 MHz crystal oscillation circuit output.
36	XTSL	I		Crystal selection input. Set low when the crystal is 16.9344 MHz, high when 33.8688 MHz.
37	FSTT	O	1, 0	2/3 frequency divider output for Pins 34 and 35.
38	C4M	O	1, 0	4.2336 MHz output.

Pin No.	Symbol	I/O		Description
39	DOUT	O	1, 0	Digital_Out output.
40	EMPH	O	1, 0	Outputs high signal when the playback disc has emphasis, low signal when no emphasis.
41	WFCK	O	1, 0	WFCK output.
42	V_{SS}	—	—	GND.
43	SCOR	O	1, 0	Outputs high signal when either subcode sync S0 or S1 is detected.
44	SBSO	O	1, 0	Sub P to W serial output.
45	EXCK	I		SBSO readout clock input.
46	SQSO	O	1, 0	SubQ 80-bit serial output.
47	SQCK	I		SQSO readout clock input.
48	MUTE	I		High: mute; low: release
49	SENS	O	1, 0	SENS output to CPU.
50	XRST	I		System reset. Reset when low.
51	DATA	I		Serial data input from CPU.
52	XLAT	I		Latch input from CPU. Serial data is latched at the falling edge.
53	CLOK	I		Serial data transfer clock input from CPU.
54	SEIN	I		Sense input from SSP.
55	CNIN	I		Track jump count signal input.
56	DATO	O	1, 0	Serial data output to SSP.
57	XLTO	O	1, 0	Serial data latch output to SSP. Latched at the falling edge.
58	V_{DD}	—	—	Power supply (+5 V).
59	CLKO	O	1, 0	Serial data transfer clock output to SSP.
60	SPOA	I		Microcomputer extended interface (input A).
61	SPOB	I		Microcomputer extended interface (input B).
62	SPOC	I		Microcomputer extended interface (input C).
63	SPOD	I		Microcomputer extended interface (input D).
64	XLON	O	1, 0	Microcomputer extended interface (output).

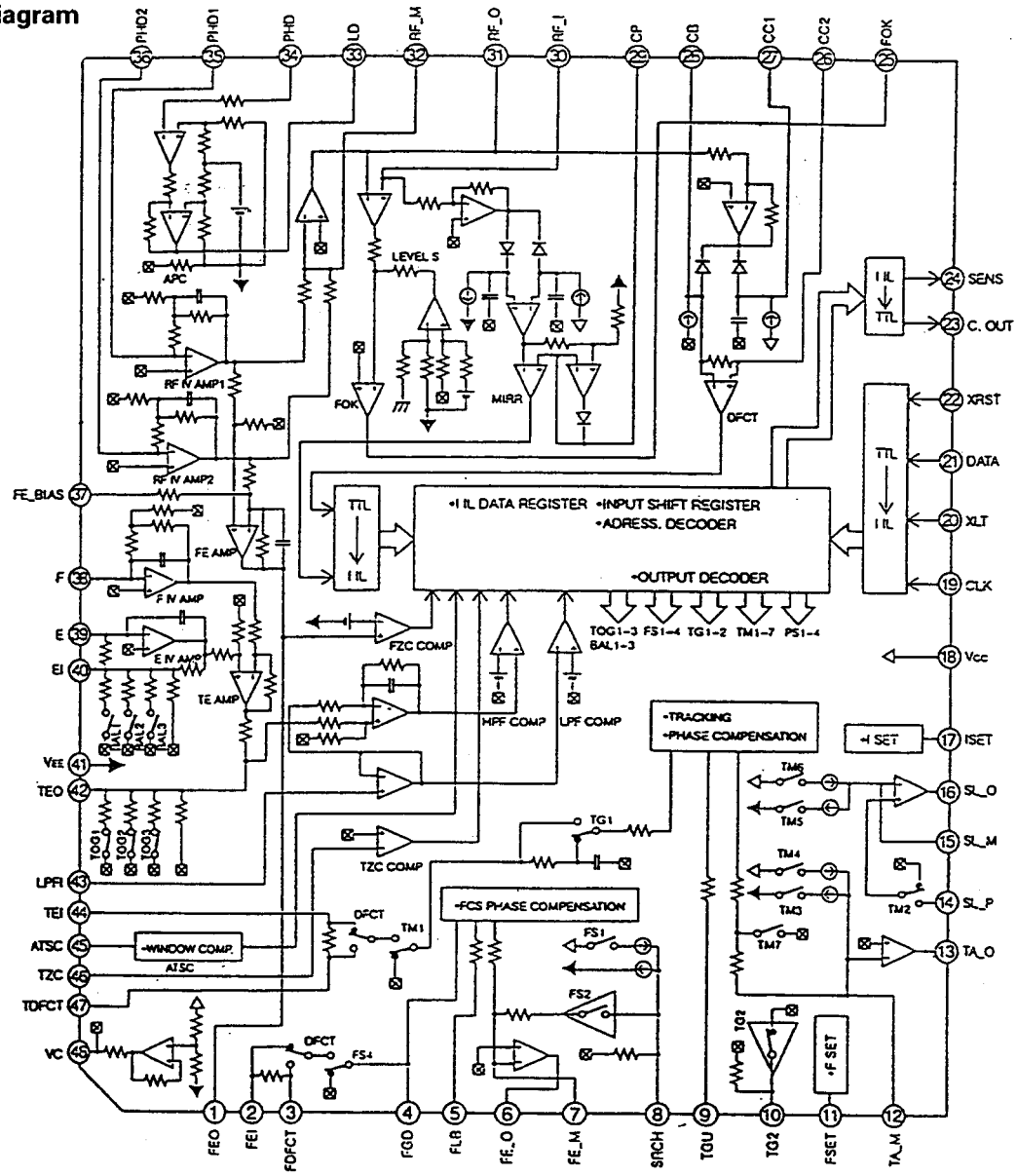
Notes:
- PCMD is two's complement output of MSB first.
- GTOP is used to monitor the frame sync protection status.
- XUGF is the negative pulse for the frame sync derived from the EFM signal. It is the signal before sync protection.
- XPLCK is the inverse of the EFM PLL clock. The PLL is designed so that the falling edge and the EFM signal transition point coincide.
- GFS goes high when the frame sync and the insertion protection timing match.
- RFCK is derived from the crystal accuracy. This signal has a cycle of 136μ.
- C2PO represents the data error status.
- XRAOF is generated when the 16K RAM exceeds the ± 4F jitter margin.

CXA 1782BQ : IC104

1. Pin Diagram



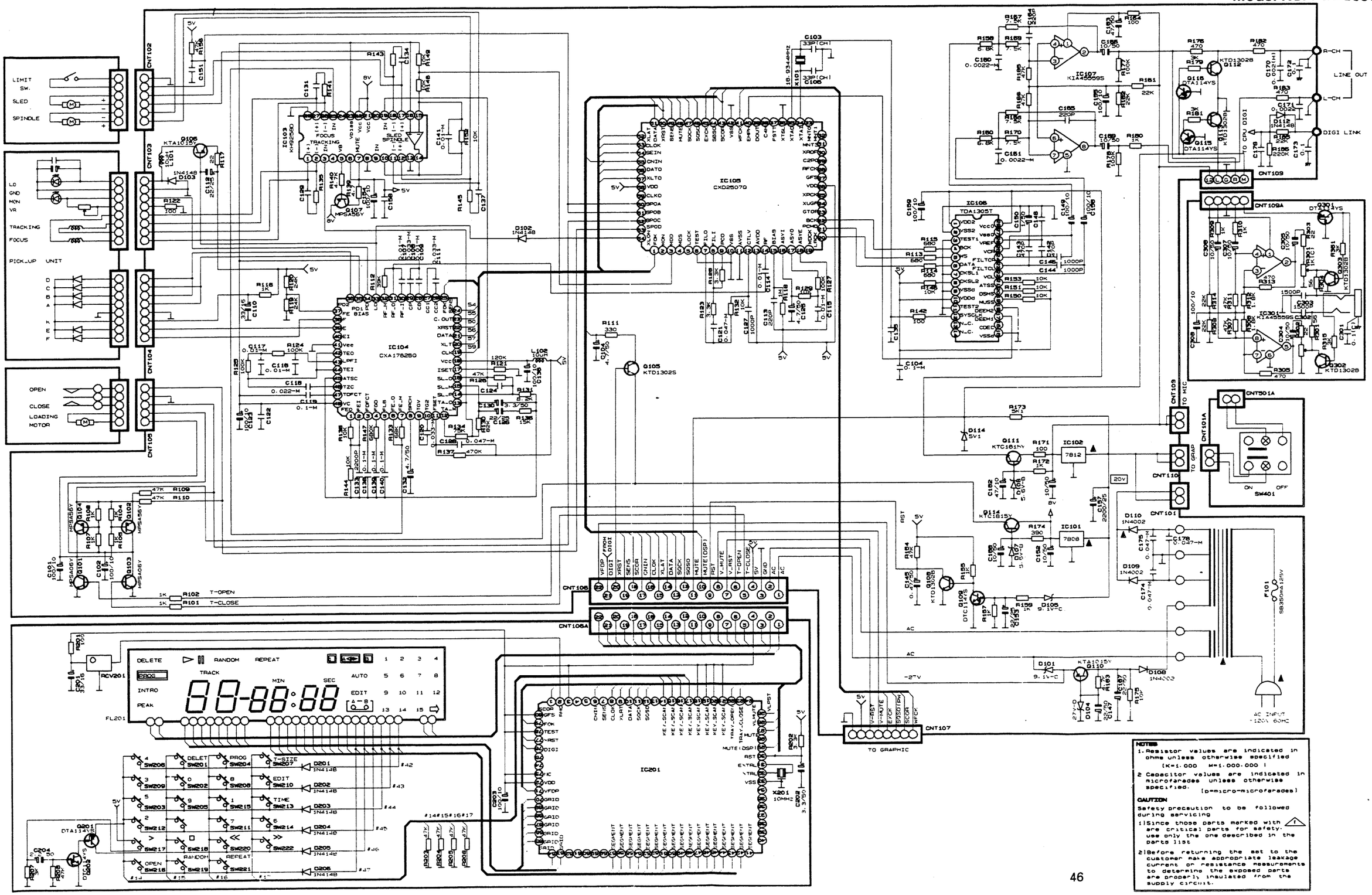
2. Block Diagram



* The switch state in Block Diagram is for initial resetting.
* Switch turns to ○ side for 1 and to ● side for 0 in Serial Data Truth Table on pages 30 and 31.
* DFCT switch turns to ○ side when defect signal generates for DEFECT=E in Serial Data Truth Table.
* TG1 switch turns to ○ side and TG2 switch is left open when TG1 and TG2 (address 1 : D3) is 1.

SCHEMATIC DIAGRAM I

Model No. : CD3050R



NOTES

1. Resistor values are indicated in ohms unless otherwise specified (K=1.000 M=1.000.000)
2. Capacitor values are indicated in microfarades unless otherwise specified. [p=micro-microfarades]

CAUTION

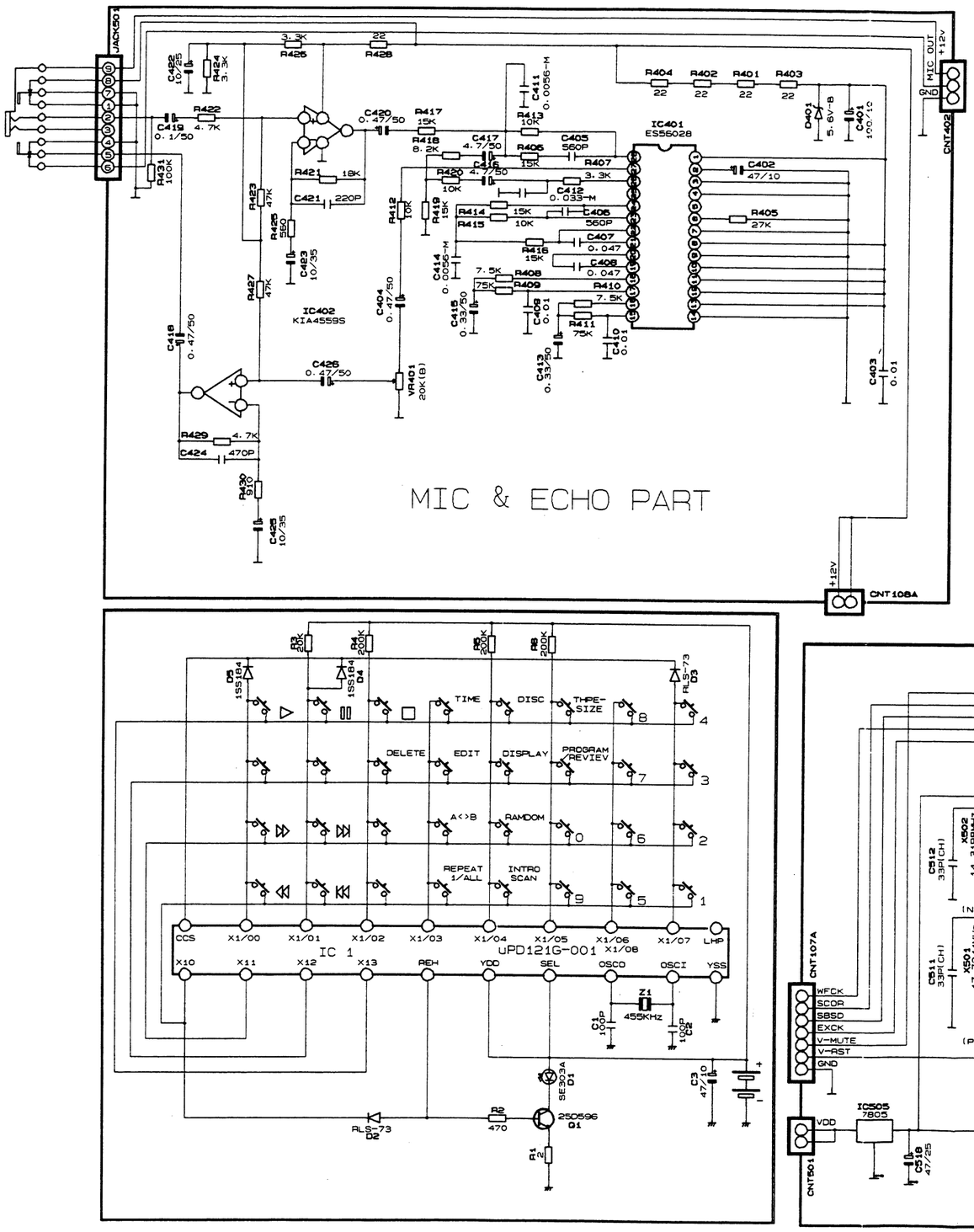
Safety precaution to be followed during servicing

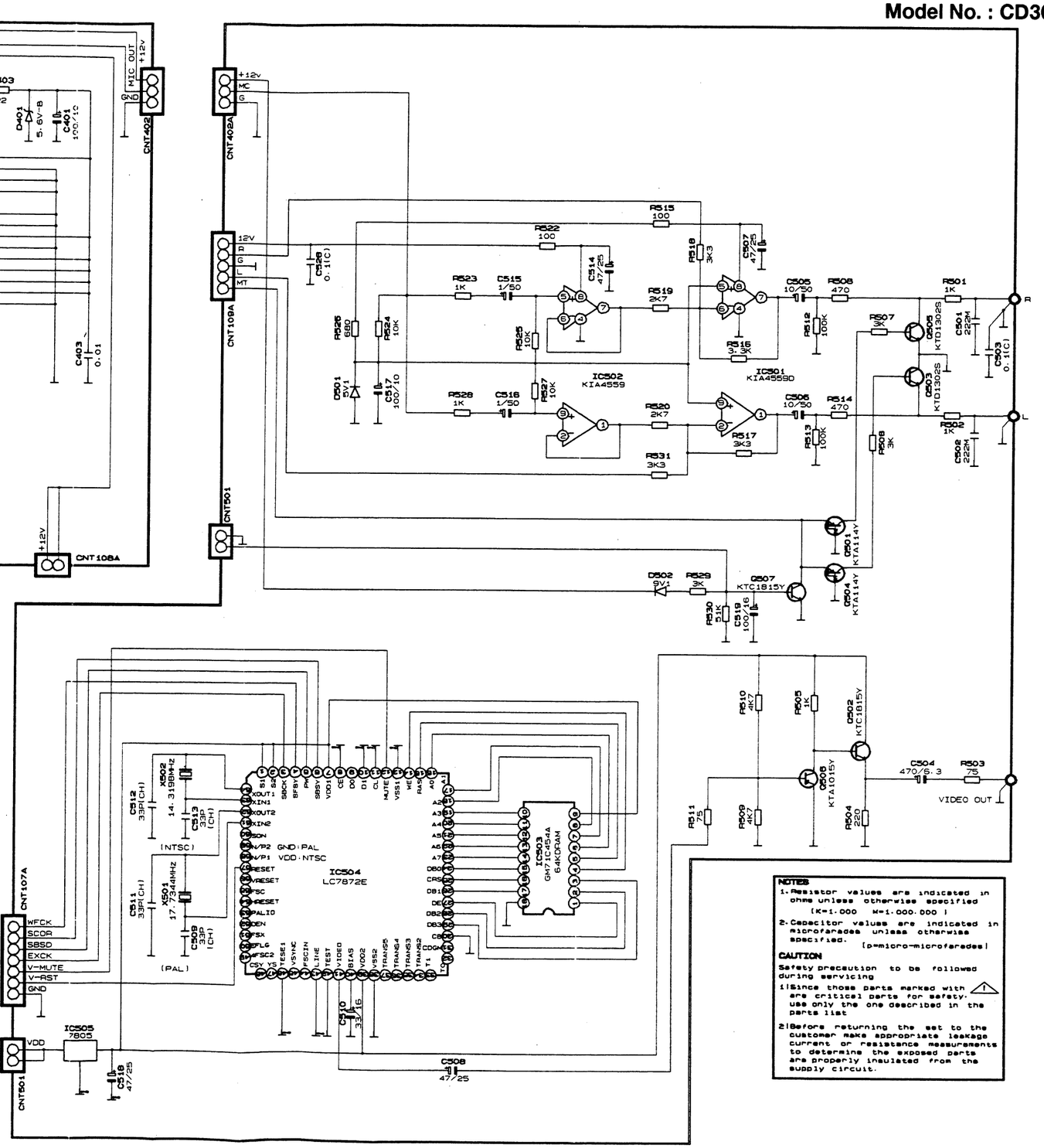
1) Since those parts marked with ⚠ are critical parts for safety, use only the one described in the parts list

2) Before returning the set to the customer make appropriate leakage current or resistance measurements to determine the exposed parts are properly insulated from the supply circuit.

SCHEMATIC DIAGRAM II

Model No. : CD3050R





NOTES

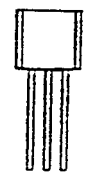
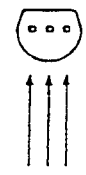
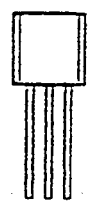
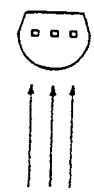
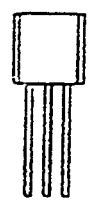
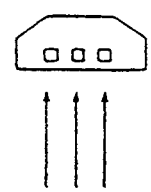
1. Resistor values are indicated in ohms unless otherwise specified (K=1,000 M=1,000,000)
2. Capacitor values are indicated in microfarades unless otherwise specified. (p=micro-microfarades)

CAUTION

Safety precaution to be followed during servicing

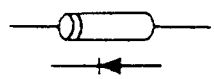
1. Since those parts marked with ⚠ are critical parts for safety, use only the one described in the parts list
2. Before returning the set to the customer make appropriate leakage current or resistance measurements to determine the exposed parts are properly insulated from the supply circuit.

TRANSISTORS LEAD IDENTIFICATION

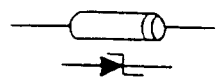
DESCRIPTION	FRONT VIEW	BOTTOM VIEW
KTC 1815Y/KTC3198 KTA 1015Y/KTA1266 KTD 1302 KTA965Y/KTC1023	 E C B	 E C B
MPSA06 MPSA56	 E B C	 E B C
DTA114YS/KRA107M DTC114YS KTA114Y (KRA107M)	 E C B	 B C E

DIODES

1N 4002



Zener Diode



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